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# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



### THESIS

**THE RELATIONSHIP BETWEEN PERCEIVED CURRENT AND  
REQUIRED COMMUNICATION CAPABILITIES OF SENIOR  
NAVY MEDICAL DEPARTMENT EXECUTIVES**

by

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and  
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March, 1994

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704
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1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE March 1994	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE THE RELATIONSHIP BETWEEN PERCEIVED CURRENT AND REQUIRED COMMUNICATION CAPABILITIES OF SENIOR NAVY MEDICAL DEPARTMENT EXECUTIVES		5. FUNDING NUMBERS	
6. AUTHOR Erich W. Diehl and David K. Hemmerly			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE	
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14. SUBJECT TERMS Executive Communications Development, Needs Assessment, Health Care Management		15. NUMBER OF PAGES 234	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	16. PRICE CODE 20. LIMITATION OF ABSTRACT UL

Approved for public release, distribution is unlimited

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MEDICAL DEPARTMENT EXECUTIVES**

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Submitted in partial fulfillment  
of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL

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## ABSTRACT

This thesis provides the analyses and identifies any gaps, or deltas, between the communication requirement and the corresponding level of communication capability of senior Navy medical executives. This delta varies according to several variables. These variables are an individual's health care community, rank, organizational position, gender, level of education, DoN short course and DoD postgraduate training, and years in a managerial position. The results reveal a consistent gap between the respondents' current communications capabilities and their perceived required capabilities. This gap is evident across all communication skill related questions which indicates that the current communications capabilities of senior Navy medical executives consistently fail to meet the reported required level of skill for the position. Specifically, the analysis showed that Dentists have statistically significant gaps between communication skill levels in delivering oral presentations and conducting meetings effectively. Additionally, Females showed statistically significant gaps between communication skill levels in managing conflict, writing effectively, and building and maintaining working and support relationships outside the organization. The analysis also indicated that DoN short course training had statistically significant positive effect among Physicians, Directors, Department Heads, and Operations Officers who had attended the short course training.

## TABLE OF CONTENTS

I.	INTRODUCTION . . . . .	1
A.	BACKGROUND . . . . .	1
B.	NEEDS ASSESSMENT . . . . .	4
1.	Three-step Needs Assessment Process . . . . .	4
a.	Organizational Analysis . . . . .	5
b.	Task Analysis . . . . .	7
c.	Person Analysis . . . . .	8
2.	NPS Needs Assessment Strategy . . . . .	8
C.	SURVEY QUESTIONNAIRE . . . . .	9
D.	SCOPE OF THESIS . . . . .	10
E.	RESEARCH QUESTIONS . . . . .	11
F.	RESEARCH METHODOLOGY . . . . .	12
G.	ORGANIZATION OF THESIS . . . . .	13
II.	LITERATURE REVIEW . . . . .	14
A.	EXECUTIVE DEVELOPMENT . . . . .	14
B.	HEALTH CARE PROVIDERS SPECIFIC ISSUES . . . . .	16
C.	CLINICIAN TO MANAGER . . . . .	20
D.	IDENTIFIED COMMUNICATION SKILLS REQUIREMENTS . . . . .	22
E.	IDENTIFIED COMMUNICATION SKILLS WEAKNESSES . . . . .	26
F.	SUMMARY . . . . .	30
III.	METHODOLOGY . . . . .	33
A.	APPROACH TO THESIS . . . . .	33

B.	CONSENT OF THE SURVEY . . . . .	11
C.	SURVEY QUESTIONNAIRE . . . . .	30
D.	HYPOTHESIS TESTING . . . . .	37
E.	PREPARATION FOR ANALYSIS . . . . .	39
IV.	ANALYSIS RESULTS . . . . .	40
A.	REPORTED POPULATION FREQUENCIES . . . . .	40
1.	Demographic Data . . . . .	40
a.	Rank . . . . .	40
b.	Corps . . . . .	40
c.	Organizational Position . . . . .	47
d.	Gender . . . . .	49
e.	Education . . . . .	49
f.	Postgraduate Education/EMI . . . . .	50
g.	DoN Short Courses . . . . .	50
h.	Years of Service in Managerial Position . . . . .	51
B.	ANALYSIS RESULTS BY RESEARCH QUESTION . . . . .	52
1.	What Are the Current Skill Levels and Required Skill Levels for All Respondents (Means, Modes and Frequencies)? . . . . .	52
2.	What Are the Current Levels and Required Skill Levels for MSC's Nurses and Physicians? Are there significant differences by Corps and between and among Corps? . . . . .	54
3.	What Are the Current Levels and Required Skill Levels for MSC's Nurses and Physicians? Are there significant differences by Corps and between and among Corps? . . . . .	54



4.	What Are the Current and Required Communication Skill Levels for Those Who Have Attended Any DoN Short Courses? Does Short Course Training Effect Current and Required Communication Skill Levels? Are There Significant Differences between Corps and Position with and Without DoN Short Course Training?	76
5.	What Are the Current and Required Communication Skill Levels for Those Who Have Attended Any DoD postgraduate education programs and Executive Management Programs? Does This Education Effect Current and Required Communication Skill Levels?	86
6.	Do Any Combination of Variables Result in High Current Communication Skill Levels?	88
7.	Do Any Combination of Variables Result in High Perceived Required Communication Skill Levels?	90
V.	CONCLUSIONS AND RECOMMENDATIONS	92
A.	RESEARCH CONCLUSIONS	92
B.	RECOMMENDATIONS	98
APPENDIX A	COMMUNICATION SURVEY RESPONSES MEANS DELTAS AND FREQUENCY DISTRIBUTIONS FOR ALL RESPONDENTS	100
APPENDIX B	COMMUNICATION SURVEY RESPONSES MEANS AND DELTAS BY CORPS	112
APPENDIX C	COMMUNICATION SURVEY RESPONSES MEANS AND DELTAS BY DEMOGRAPHIC VARIABLES	121
APPENDIX D	COMMUNICATION RESPONSES MEANS AND DELTAS BY DoN SHORT COURSES	159
APPENDIX E	COMMUNICATION RESPONSES MEANS AND DELTAS BY DoD POSTGRADUATE EDUCATION	172
APPENDIX F	MANAGING A MILITARY MEDICAL TREATMENT FACILITY A SURVEY OF EDUCATIONAL NEEDS	178

APPENDIX G	COMMUNICATION RELATED QUESTIONS . . . . .	181
APPENDIX H	SIX MOST FREQUENTLY MENTIONED SKILL TRAINING, EQUIPMENT FOR COMMUNICATIONS SKILLS . . . . .	186
APPENDIX I	CATEGORIZATION OF EXECUTIVE POSITION RESPONDENT ANSWERS . . . . .	187
APPENDIX J	DICTIONARY FOR MEANS TABLE VARIABLES . . .	189
APPENDIX K	POSTGRADUATE MAN/ MATH EDUCATION/ TRAINING BACKGROUNDS . . . . .	190
APPENDIX L	JOINT MIL/ MATH MANAGEMENT EDUCATION/ TRAINING BACKGROUNDS . . . . .	191
APPENDIX M	CROSS TAB. DATA FOR PARTICIPANTS IN TEN SHORT COURSES . . . . .	192
APPENDIX N	SUMMARY OF ACTUAL MEAN AND DELTA TABLES BY DIFFERENT DEMOGRAPHIC VARIABLES . . . . .	193
LIST OF REFERENCES . . . . .		212
INITIAL DISTRIBUTION LIST . . . . .		215



## I. INTRODUCTION

### A. BACKGROUND

Both governmental and private health care in the United States is undergoing dramatic change. Health care executives must control costs and improve quality while meeting the needs and demands of individual patients and health care groups as well as government regulatory agencies. This dynamic environment is made more complex by changing societal views on health-care quality and individual access to health care. As a result, health care executives must constantly expand and refine their management skills to better meet this new set of health care demands and standards.

Navy Medical Department executives must either develop or improve their management skills to be more effective in this changing environment. Although a number of Navy Health Care Administrators (primarily Medical Service Corps Officers) have backgrounds and educational credentials in health care administration, the Navy Medical Department has historically promoted direct care and ancillary care providers (e.g., physicians, nurses, pharmacists, medical technologists) into senior management positions. These care providers have demonstrated remarkable skills within their clinical

specialties; however, many have limited or no background in the skills necessary to effectively manage complex health care facilities. This paradox was described by Peter Drucker in 1986.

...people of high effectiveness are conspicuous by their absence in executive jobs. High intelligence is common enough among executives. Imagination is far from rare. The level of knowledge tends to be high, but there seems to be little correlation between a person's effectiveness and their intelligence, their imagination and their knowledge. Brilliant people are often strikingly ineffectual; they fail to realize that brilliant insights become effectiveness only through hard systematic work.

As a result, while Navy Medicine has readily promoted highly intelligent and professionally competent individuals into positions of executive management, an identifiable trend of less than effective management occurred throughout the various commands. (Blue Ribbon Panel p. ES-12)

Drucker goes on to say that effective executives share common working practices, or tasks, that make them more effective than their peers. These practices include the setting of objectives, developing strategies and plans, and making decisions today for attaining long term organizational goals. These practices require a diversity of capabilities, and temperaments. They require the ability to analyze, think, and to weigh alternatives, the capacity for quick and decisive action. They also require being at home with abstract ideas, concepts, calculations and figures (Drucker 1974, p. 616). These practices and tasks are the same, no matter where the

individual works (e.g., government, business, education, etc.). Drucker's experience has also shown that whatever the individual's intellectual ability, without observation of these common practices the executive fails to be effective in management. The issue here is not the specific "practices" that Drucker outlines in his discussion, but the fact that he considered effectiveness a habit, or a complex set of practices that can be learned. In other words, people are not born effective managers or leaders; they develop leadership and managerial competencies.

The Department of the Navy Medical Blue Ribbon Panel (BRP) addresses the question of managerial effectiveness, implied by promoting clinical specialists to management positions, when it delivered its 1998 report assessing the issues facing Navy Medicine into the 1990's. The report concluded that

Peacetime assets and management of the Navy Medical Department have not maintained the capability to treat the [beneficiary] population in Navy facilities. Accordingly, patient workload has [increasingly] shifted from in-house Navy care to the Civilian Health and Medical Plan for the Uniformed Services (CHAMPUS). (Blue Ribbon panel:p. 55-3.

Citing decreased in-house capabilities, rapidly increasing health care costs, and line-Navy criticism of Navy Medicine's process for developing medical department officers for command and key billets, the BRP subsequently recommended that Navy

Medicine ". . . develop leadership/management skills and training requirements for a formal command development process, and, formally, establish career paths for leadership positions [that require] experience." (Blue Ribbon Panel:p. 28-11)

In 1992, as the result of a Navy Inspector General report, the Vice Chief of Naval operations directed the establishment of a formal training program and command development process for medical department officers. This mandate further said that leadership training was to be given at critical career transition points. (Blue Ribbon Panel:p. 28 The immediate solution was the adoption of two short courses "two weeks long" which were designed to meet the leadership and management requirements of medical department officers. The first was the Leadership Management Education and Training (LMET) course (now called NAVLEAD) for division officers, department heads, and Commanding Officers, while the second was to be a basic management course (MANDEV) for direct health care providers in "first level" management jobs. (Blue Ribbon Panel:p. 29)

While Bureau of Medicine (BUMED) leadership initially believed that the LMET (NAVLEAD) program would be an excellent vehicle for the development of executive leadership skills in Navy Medicine, weaknesses were immediately evident. Although LMET (NAVLEAD) effectively provided basic (general) leadership skills, it failed to meet the management requirements for executives in a complicated and challenging health care

environment. The BRP attributed much of the program limitations to inadequate definition of the knowledge, skills, and abilities required for each management level within Naval Medicine. Also Riboon Panelig, 19. Additionally, while BUMED placed emphasis on the completion of LMET (NAVLEAD) and similar short courses (e.g., Management Development Course (MD-C) and the Strategic Medical Readiness and Contingency Course (SMR-C)), these courses compete with continuing education requirements specific to various professional corps (e.g., graduate medical education (GME) for medical officers), operational commitments, and the requirements of the command in providing medical care. These problems are further complicated by the differences in the education and training backgrounds of medical executives eligible for command and leadership positions. These differences in training backgrounds create a unique set of frameworks within each community (physicians, nurses, dentists, ancillary care providers, or administrators) through which the delivery of health care is viewed. Finally, BUMED never adopted a basic management short course that combined training for the direct care health care providers and first level management positions.

Beyond the LMET (NAVLEAD) and similar short course training, select executive development programs through private institutions were employed to provide the required management training. However, the BRP reported difficulty evaluating the



effectiveness of such programs because of their relative newness. Furthermore, the Navy Medical Department was ineffective in managing such issues as, who should receive the training, what selection criteria should be used, and the career milestones such training should occupy. Blue Ribbon Panel: 39.

Challenged with obtaining effective executive development programs designed specifically for the unique needs of Navy Medical Department executives, Congress directed DoD to develop an effective executive training program. Backed by this Congressional mandate and with DoD support, BUMED has entered into a partnership with the Naval Postgraduate School (NPS), Administrative Sciences Department, to identify the abilities Senior Executive Managers must have to effectively manage Navy Medical Treatment Facilities (MTFs). When the required management competencies are identified by research, NPS will then propose, design, and conduct customized, cost-effective executive development programs. These programs will satisfy the requirement for Senior Navy Medical Department Executives to be adequately prepared to manage complex medical systems.

## **B. NEEDS ASSESSMENT**

### **1. Three-step Needs Assessment Process**

To ensure that executive development meets both individual and organizational needs, a process known as a "needs assessment" is used for identifying training

requirements. A needs assessment addresses organizational analysis, operations task analysis, and person analysis. Muchinsky, p. 194.

#### **a. Organizational Analysis**

Organizational analysis is based on the assessment of the entire organization with specific attention to organizational objectives and allocation of resources. This process identifies the global organizational issues that would benefit from executive development or training. This step was performed at the BUMED level through interaction between BUMED, the Navy Inspector General, the Secretary of the Navy, DoD, Congress, and the line community. The global executive development requirement identified through this process targeted executives in Navy Medicine (e.g., Commanding Officers, Executive Officers, Directors, and other senior executive positions). Furthermore, this requirement serves as the mandate for a program to meet the Navy Medical Department's needs. The needs assessment initiated by the NPS, Department of Administrative Sciences focused on the remaining two steps --task and person analysis-- in the development of the executive development program.

#### **b. Task Analysis**

Task analysis targets the specific tasks necessary for the effective accomplishment of a particular job or skill. Addressing the functions of the position, task analysis provides

a broad range of information, including: standards of performance; identification of specific tasks involved with the job; and an outline of specific performance levels required to accomplish each task. Task analysis also identifies crucial elements of job performance which are the particular knowledge, skills, and abilities KSAs needed for the job.

### **c. Person Analysis**

Person analysis provides the link between the capabilities of the incumbent and the specific skill requirements identified in the Task Analysis. Person analysis is used to pinpoint individual training requirements and to assist in the decision concerning the type of training an individual needs.

## **2. NPS Needs Assessment Strategy**

NPS has developed a two-step needs assessment approach to identify the competencies required to effectively manage Navy Medical Systems.

1. Semi-structured interviews, completed in July 1990, identified the issues and skills that executives currently holding positions of managerial responsibility in Navy medicine see as important. This input was used to develop a survey to broadly assess the relative importance of managerial issues and skill areas.

The survey was used to complete the second step of NPD's two-step needs assessment process and provided the task and person analysis used to develop an executive management education (EME) program for Navy medicine.

2. Survey questionnaires were sent to executives within the Navy Medical Department to obtain current and perceived skill levels and beliefs concerning the expertise required to effectively manage Navy medical systems. The survey also gathered demographic data on individual and job experience. Additionally, management background information indicating previous education and training through civilian and military short courses was collected.

### C. SURVEY QUESTIONNAIRE

The Survey questionnaire consisted of 60 questions. Each focused on a managerial skill area, in which respondents were asked to evaluate their current skill level in that area as well as "... the required level necessary to function effectively as an executive in your role." Both parts of the question used an eleven-point scale in which "0" indicates no knowledge or ability in the area, A rating of "1" to "3" indicates a low level, a "4" to "7" a moderate level, and a rating of "8" to "10" a high level of current skill and required skill.

The questions were organized into the following eight categories:

1. Financial/Resource Management
2. Program Planning and Evaluation
3. Decision Making/Problem Solving
4. Legal Issues
5. Operations Management Issues
6. Organizational Behavior
7. Manpower and Human Resource Management
8. Communication

The final Question asked the respondents to classify what level of need (very Low priority = "1" to high priority = "10") should be assigned to providing education in each of the eight management skill areas.

NPS researchers field tested the survey questionnaire on 29 September 1992 and on 1 March 1992 at Naval Hospital Long Beach, CA and Naval Hospital Camp Pendleton, CA to ensure that the instrument was clearly written and easy to understand. The NPS team reviewed all comments and recommendations made by the test respondents, modifying the questionnaire as required. The survey questionnaires were mailed on 14 November 1992 and the last returns (for the purpose of this research) were received on 14 January 1993. A total of 476, of the 720 questionnaires, were received. However, because thirteen were returned as undeliverable, a total of 707 was used as the basis for computing the return rate of 67 percent.

#### **D. SCOPE OF THESIS**

The interview process and questionnaire responses have indicated that varied competency levels and perceptions of need

exist among individual executives. Nearly all respondents acknowledged they have deficiencies in their educational background or experience, which leaves them less prepared for positions of increased managerial responsibility. While existing research has looked at the bulk of the categories in the survey, there has been sparse examination of communication issues. This thesis will be confined to the analysis and discussion of the communication related responses obtained from the survey instrument. It will describe the perceived executive management communication requirements and reported skill levels within Navy Medicine that will identify final executive management education program requirements. Requirement identification, program development, and final delivery will be the domain of the NPS BUMED Project Team and subsequent thesis students.

## **E. RESEARCH QUESTIONS**

Specifically this thesis will answer the following questions:

1. What are the current and required communication skill levels (means, modes, and frequencies) for all respondents?
2. What are the current and required communication skill levels for MSC's, Nurses, and Physicians? Are there statistically significant differences by corps and between and among corps?
3. What are the current and required communication skill levels by rank, gender, education, position held, and years of service in managerial positions? Are there any statistically significant differences?

4. What are the current and required communication skill levels for those who have attended any DoN short courses? Does short course training affect current and required communication skill levels? Are there statistically significant differences between corps and position with and without DoN short course training?
5. What are the current and required communication skill levels for those who have attended DoN graduate education programs and Executive Management Programs? Does this education affect current and required communication skill levels?
6. Do any combination of variables result in high current communication skill levels?
7. Do any combination of variables result in high perceived required communication skill levels?

#### **F. RESEARCH METHODOLOGY**

Since the scope of this thesis is to analyze the communication related survey questions, these questions were selectively identified from the entire survey questionnaire (Appendix F). The process of selection was accomplished by determining which questions directly or indirectly utilized communication techniques or issues. The questions that are communication-related were instrument numbers 34, 39, 44, and 53 through 60 (Appendix G). All responses were numerically coded, in numeric or scalar responses, or input according to a uniform coding system for answers with alpha characters. The analysis of the selected communication questions was then completed using the SAS statistical package.

## G. ORGANIZATION OF THESIS

In presenting the analysis and subsequent discussion of the research questions, Chapter I provides an introduction, covers the background of the needs assessment process, discusses the development of the survey questionnaire, and identifies the scope of this thesis. Chapter II reviews the literature pertinent to executive management development, with emphasis in communication needs. Chapter III presents the methodology utilized in the analysis of the communications related questions of the NPD survey. Results, analysis and conclusions are presented in Chapter IV with recommendations in Chapter V.



## II. LITERATURE REVIEW

The Navy Medical Department has historically promoted competent health care providers out of the clinical environment and into the management arena. However, without a "bag" of managerial skills, the health care provider turned manager is often in a difficult and frustrating position. For Navy health care executives to perform optimally in management roles within a complex health care environment, appropriate management education/training must be made available that targets the knowledge, skills, and abilities (KSA) necessary for success.

In this chapter we will examine literature and research on the need for executive management education as individuals transition from the role of clinician to that of executive leadership roles. Next, we will look at those issues specific to health care providers transitioning into executive management, and explore why physicians may have difficulty transitioning from clinician to manager. Finally, we will discuss the specific communication training and education needs required by health care providers transitioning to executive leadership/management positions.

### A. EXECUTIVE DEVELOPMENT

In his study concerning the need to develop managerial skills in engineers and scientists, Badaway suggests that management theories and principles remain universal or

generic across occupational or organizational boundaries. (Badaway, pp. 11-12) However, because management deals with people across many occupations (e.g., economics, behavioral sciences, accounting, math, statistics, engineering) there are few concrete management tools or techniques that have universal application. The lack of "hard" techniques moves management from a strictly scientific endeavor to what can be best described as an "art." As such, while the theories and principles remain universal, their application, or practice, becomes highly individualized in response to the cultural background, organizational environment, creativity, values, and judgment of the individual manager. Badaways' emphasis is that managers are not born with the specific knowledge, skills and abilities (KSAs) that enable them to become effective managers, but that these skills can be developed as they progress into management.

If management is a learned "art," the ability to become proficient in its knowledge and the conversion of that knowledge into usable skills is how one masters the art. This mastery becomes increasingly important as health care providers are promoted out of the clinical environment and into the management arena. Tom Peters provides the following insight:

There is no more difficult transition in a career than one from non-boss to boss; the second-toughest is to boss of bosses. These passages should be marked by programs commensurate with their significance. (Peters, p. 329)

In other words, appropriate management education/training must target the knowledge, skills, and abilities (KBAs) that the new boss will need to be successful.

## **B. HEALTH CARE PROVIDER SPECIFIC ISSUES**

The medical community has great diversity in the clinical and managerial education and training of its members. These differences are the result of different training and education tracks required to develop the various health care provider specialties. For example, physician and nurse training places a greater emphasis on clinical procedure, diagnosis, and treatment than ancillary care training. Health care administrators have more management training than any of the other groups and almost no clinical training. Consequently, each community (physicians, nurses, dentists, ancillary care providers, and administrators) has its own unique lenses through which it views both the delivery of health care and its management. Because of these unique lenses, the development of a community specific or parochial focus among clinicians turned managers is a problem. This is particularly true as individual specialized officers are promoted to positions with more institutional responsibility and broader focus. Without executive development programs, this transition from clinician to manager becomes significantly more difficult as the newly promoted officer attempts to manage a broader

range of institutions. Management leaders with only community focused training.

Navy health care providers turned executives need training and education in several management skill areas as they progress up the management ladder. Crawford, Roberts, and Griffin p. 7. These areas are identified and expanded on in Mann and Staudenmier's 1990 survey of major trends in executive development as identified by seventy-seven senior executives of companies listed in the U.S. Fortune 100 and Canadian Financial Post (Mann and Staudenmier, pp. 37-66). In identifying three major executive development trends

1. Building global capabilities
2. Merging learning and work
3. Balancing common and individual development needs

they provide a list of "top-rated" executive development topics identified by current health care executives as essential for future competitiveness in a global market. These are displayed in Table I.

Mann and Staudenmier found that while a broad spectrum of the technical knowledge areas such as financial management, marketing, and information systems are necessary to function in complex a health care organization, the strongest training need is on the interpersonal skills associated with communications, organizational behavior, program planning and evaluation, and human resources management.

Stevenson, Nicholas, and Woods also identified the process of transitioning from clinician to manager in their 1991 survey of 104 health care chief executive officers (CEOs). In their discussion, they address the need to develop training

**TABLE I. TOPICS IN EXECUTIVE EDUCATION AND DEVELOPMENT PROGRAMS**

Topics	Past Emphasis (Percent)	Future Emphasis (Percent)
Leadership	38	69
Managing Human Behavior	22	73
Becoming Customer or Market Oriented	27	70
Implementation of Business Strategies	23	71
Managing Organizational Change	18	64
Developing and Formulating Business Strategies	26	62
Team Building	20	61
Total Quality Control	25	59
Communications Skills	27	57
Interpersonal Skills	27	55

Source: R. W. Mann and J. M. Staudenmier, "Strategic Shifts in Executive Development," Training and Development, July 1991, 38.

programs in interpersonal, strategic planning, and leadership skills processes to better prepare individuals for the transition from clinician to manager. They define financial management, marketing, negotiating, planning and development, data and information systems management, and physician relations as specific technical skill areas. They also identify the

health care administrators as performing the communicative role of "translator" of these technical skill areas so that employees, community, board, and medical staffs can understand them. Based on Mann and Staudenmeyer's 1981 research and Stevking, Nicholas, and Woods 1981 research, the management development training requirements for health care executives can be divided into two categories:

1. Specific technical management topics associated with financial management, legal issues, data and information system management, and marketing to provide the broad spectrum of general knowledge necessary to manage a complex health care organization.
2. In both studies, the strongest emphasis for training requirements is on program planning and evaluation skills, organizational behavior, human resources management, and communication skills.

The second category acknowledges that one individual cannot control all the technical and organizational knowledge within the organization, but must rely on "subject matter experts" for much of the specific technical information and issues. It is the skills in the second category that enable the effective health care executive to negotiate, persuade, coordinate, and ultimately mold the organization into a flexible and adaptable system to meet the organizational mission and goals.

### C. CLINICIAN TO MANAGER

In the Navy Medical Department two groups can be advanced to senior executive levels: health care administrators (HCAs) and direct health care providers (physicians, nurses, and allied health care providers and dentists). The health care administrators (HCAs) of the Medical Service Corps are expected to have an educational and training background in the business of hospital administration and management. On the other hand, the majority of direct care providers promoted to executive management have little or no management education and training background. (Morrison Thesis p.16) This lack of management education/training and background places the clinician turned manager in an often frustrating position. In this section we will examine some of the literature that identifies the cause of this frustration.

In their research, Kurtz and Hamilton identified some major differences between physicians (clinicians) and managers (Kurtz p.10, Hamilton p.38). These differences illustrate the varied frameworks and values associated with each group. By analyzing these two frameworks, Kurtz developed a "big picture" understanding of the differences between the two views and approaches to health care management. Physicians demonstrate an independent, "captain-of-the-ship" approach to medical care where they provide the decisions that lead to immediate and measurable results in the patient's clinical outcome. This

autonomous, patient-focused role conflicts with the organizational identification and group orientation associated with management professionals. Kurtz identifies this conflict between physician norms of behavior and management norms, and the physicians strong association with their profession, not the organization, as the key to physician resistance in making the transition from clinician to manager (Kurtz p. 13). Although Kurtz feels the physician manager would be uniquely qualified to fill an important executive function within the organization, the primary constraint is the lack of training in the specific management skills needed by health care executives. Management training would overcome physician resistance in making the transition to management. (Betson and Pedroja p.335)

Hamilton observes similar paradigm differences in a paper describing the characteristics of medical and business training as an explanation for the perceived differences between physicians and managers. Physicians work well independently, are oriented to individual patients, have short term objectives, and seek immediate rewards. This contrasts with managers who typically value teamwork, work most effectively with and in groups, are primarily organization oriented, have long term objectives, and enjoy the process of a project as much as its completion. (Hamilton p. 39)

These fundamental differences between physicians and managers are a product of varied training environments.



Hamilton p.32 The traditional medical training experience promotes the development of independence, autonomy, self reliance, decisiveness, focused behavior, and appreciation of immediate, specific rewards. These are all characteristics common to physicians. Business training favors group activity, and the development of communication and negotiation skills, creativity, and appreciation for process and longer term more subjective rewards. These behaviors and attitudes apply to managers. (Hamilton p.32)

Just as physicians have been educated to become clinicians and practitioners of medicine, they can be trained in the science and art of management. Specific training in communication skills, management processes, program planning and evaluation skills, and human resource management will better prepare the physician for the complexities and challenges of management. (Betson and Pedrosa p.335)

#### **D. IDENTIFIED COMMUNICATION SKILLS REQUIREMENTS**

Two major categories of communication variables can be identified from the body of communication research: information flow variables and perceptual, or relationship variables. (Pinous p.21) Both offer a broad framework for examining communication skills needed by executive health care administrators.

Information flow variables, such as personal feedback and communication climate, are more closely tied to a manager's job performance. Relationship variables, like communication with

outside agencies and informal horizontal communication among peers, are more tightly linked to a manager's job satisfaction. The communication related questions in the NPS survey fit neatly into one or the other category as shown on the following page:

1. Information flow variables' category

- Managing Conflict.
- Developing subordinates, coaching, teaching, mentoring.
- Writing effectively.
- Giving positive and negative feedback.
- Delivering effective oral presentations.
- Listening effectively.
- Fostering a climate of open communication.
- Conducting meetings effectively.

2. Perceptual or relationship variables' category

- Developing and communicating a vision for the future.
- Building and maintaining working and support relationships outside your institution.
- Representing the organization to external groups, e.g. public relations.

Schapiro states that ineffective communication is at the heart of many hospital administration problems. Communicating directly --being aware of not giving mixed messages, reading other people's intentions and directions-- is critical to a hospital administrator's success. The skill of "reading" people's verbal and nonverbal messages, selective listening, recognizing body language, and asking clarification on mixed messages are also vital elements of clear communication. (Schapiro p. 29)

A 1991 survey conducted by Alpaender, Goveas and Strong reveals that hospital administrators and other senior management officials consider communication skills such as the hospital

liaison role, integrating the medical staff with the hospital, and acting as the "information center" to be in the top 10 of skills needed to effectively perform their job. (Alpander, Guvenco, Strong p. 274)

In hospitals where poor communication, low morale, and conflict among constituencies persist, effective and open communication is not emphasized and training programs to develop communication skills are not utilized. (Alpander, Guvenco, and Strong p.275). Problems in low morale, interpersonal conflict, and high turnover rates have been directly attributed to the inability of CEOs and other senior hospital administrators to fill their liaison communication role of forging viable working relationships in and between their staff sections. (Alpander, Guvenco, and Strong p.279) Differing perceptions, resulting from a lack of common understanding of the objectives and a clear statement of what each job holder is expected to do to reach the objectives, result in a breakdown of communication between the administrative and medical segments of the system. This breakdown in communication leads to poor working relationships. (Alpander, Guvenco, and Strong p.271)

A training needs assessment survey conducted in 1998 by the Public Health Foundation pinpointed what health administrators perceived as the knowledge, skills, and abilities (KSAs) judged essential for success in their

leadership role. Liang, Renard, Robinson, and Richards p.116. In the top ten percent of these FOMs were the following communication skills:

1. Surveying department mission and establishing commitment
2. Delegating to others
3. Getting your point across, in writing or in person
4. Presenting and defending a position
5. Writing and orally presenting justifications
6. Effectively communicating health information to the public through the media
7. Establishing and maintaining relationships with constituent groups
8. Identifying and working with community leaders
9. Working with the legislature

These findings confirm some major concerns about health leadership put forth in a 1988 Institute of Medicine IOM report (Institute of Medicine Report 1988 p.6). The IOM report found that health care administration leaders with weak communication skills often had problems fulfilling their leadership roles of developing relationships with and educating legislators and that they needed to strengthen relationships with key community constituencies. These problems stemmed from, among other things, an inability to write well and give effective oral presentations (Liang, Renard, Robinson, and Richards p.120).

The U.S. Army-Baylor University Graduate Program in Health Care Administration survey of fifty senior hospital executives across the United States identified the job knowledge, skill, and ability (KSAs) requirements necessary for successful hospital administration (Hudak,Brooke,Finstuen,and Riley p.162 .

Fellows of the American College of Healthcare Executives from across the United States responded to two iterations of a Telnet mail inquiry. In the first iteration, they identified 111 issues that were content-analyzed into nine domains by an KSA expert panel. In the second iteration the Fellows reviewed the domain results and rated job requirements on job importance.

The survey respondents gave top ranking to communication KSAs. Communication KSAs were identified as effective interpersonal skills, ability to manage complex relationships in the highly dynamic health care environment, ability to articulate a vision that integrates organizational efforts, understanding others frames of reference, conflict management, and team building skills. The respondents believe that the successful health care executive must not only be concerned with the issues of cost and finance but also strive to improve their leadership abilities and interaction skills in dealing with their professional staffs. They state that executives should focus their personal training within several complementary areas: verbal communication (including listening) skills, enhancement of the ability to understand others' frames of reference, conflict management training, and team-building skills (Hudak, Brooke, Finstuen, and Riley p.190).

These KSAs suggest that administrators need to know more than how to solve problems and make decisions; they must also be trained in the skills of articulating a vision to integrate

organizational efforts and fostering an environment that will encourage suggestions and an understanding of others' frames of reference. Health care executives are required to work with people at different organizational levels so their communication skills training should be sufficiently broad to relate across the spectrum of the hospital, including the board, the medical staff, and the hospital staff. Husak, Brooke, Finstuen, and Riley p.198)

According to Michael Garko, training in persuasion and compliance gaining strategies for hospital executives must also be a part of their communication skills education. Previous research convincingly supports the principle that managing and influencing are related by showing that managers' choices of compliance-gaining strategies play a major role in the successful exercise of influence. (Garko, Kipnis, Krone and Ludlum, Seibold and others) Garko states that "the essence of managerial work is the exercise of influence." (Garko p.9) Similarly, the ability of health care executives to successfully exercise influence through persuasion will determine to a large extent how effective they will be as managers. Persuasion skills include using the strategies of reason, bargaining, friendliness, coalition, assertiveness, and higher-authority in influencing both subordinates and superiors. (Garko p.11)

## E. IDENTIFIED COMMUNICATION SKILLS WEAKNESSES

Many writers comment that most physicians lack managerial communication training and are not prepared to move from medicine to management. Kurtz 1988, Bloom 1991, Finous 1986, Anderson 1991, Fitzgerald 1988. We will look at what each of them has to say.

Kurtz argues that as physicians make the transition from clinicians to managers, they continue to communicate in a clinical modality. That is, they function independently and autonomously from other organizational members and see themselves as the ultimate authority, with little inclination to engage in participative and collaborative team management. Kurtz describes the results of this communication, "While clinical behaviors are critical for success in the practitioner role, they tend to create conflict, resistance, and tension in the managerial role." (Kurtz p.10)

Another weakness of health care executive communication behavior is managing conflict. Bloom writes that hospital managers must take an active communications role in preventing and resolving "turf" controversy between doctors to minimize the adverse effects on relationships between physicians and between the medical staff, administration, and the governing body. Beyond this primary conflict, turf battles magnify ethical and quality assurance issues which are the responsibility of the

hospital administrator as well as the hospital staff. Bloom p.594. The hospital executive must be trained in conducting meetings effectively, and in conflict resolution techniques to ensure that communication between specialty groups and hospital administration increases so as to minimize turf battles (Bloom p.596).

The skill of fostering an open climate for communication is another challenge for the clinician turned administrator. The hospital administrator must be trained to implement innovative and active communication training programs to foster an open communications climate within the organization. This open climate must provide a medium where physicians can share information and skills concerning treatments, the use of new equipment, and the development of new therapeutic and diagnostic techniques. It must also provide for frequent personal feedback which has been found to be related to job satisfaction and to a lesser extent, job performance. (Pincus p.9)

The ability to communicate with the news media is also critical for the health care executive. In a recent survey by *Hospitals*, the news media is often cited by health care executives as the most difficult group of individuals to communicate with, outranking even the medical staff. (Anderson p.38)

Health care executives' greatest concern in dealing with journalists is what they perceive as the media's lack of



information and lack of understanding of health care issues. In a survey of 175 institutions, administrators' perceive that they are not well prepared to deal with the media, they fear being quoted out of context, and they exhibit a lack of trust in the media. Fitzgerald, Embrey-Wahl p.10: Executives must take advantage of education and training programs that focus on developing media relation skills. Efforts to resolve these fears and perceptions are imperative, since continued dissatisfaction with the media ultimately will result in a misinformed or uniformed public.

#### **F. SUMMARY**

In this chapter we have reviewed research and literature on the need for management education and training as individuals transition from clinician to positions of executive management responsibility.

In the Executive Development section we discussed that management is an art that requires the development of usable skills from the training and education provided in order to master it. In the Health Care Specific Issues section we looked at the diversity of training and education found in the Navy medical community. We discovered that this diversity does not adequately prepare individuals for senior management positions in the health care arena.

Based on studies by Mann and Staudenmier (1991) and by Sieveking, Nicholas and Woods (1992), we identified two

categories of executive skill training and education requirements.

1. Specific technical management topics associated with financial management, legal issues, data and information system management, and marketing to provide the broad spectrum of general knowledge necessary to manage a complex health care organization.
2. Program planning and evaluation skills, organizational behavior, human resource management, and communication skills.

Both studies emphasize that mastering the skills in communication, program planning and evaluation, organizational behavior, and human resource management is essential to successfully manage a health care facility.

We next looked at the specific differences between clinicians and managers to discover why physicians may have difficulty transitioning from their role of clinician to executive leadership roles. In the Clinician to Manager section we found that the differences in perspectives between physicians and managers are the result of the varied training and education each group undergoes during their professional development. These differences in perspectives can be minimized through education and training in executive management skills, thus enabling the physician turned manager to be a more effective hospital administrator.

The last two sections, Identified Communication Skills Requirements and Weaknesses, cover the literature specifically relating to executive health care managers self-identified needs in communications skills. The body of literature shows clearly the importance of mastering various communication skills to better manage health care facilities.

The next chapter will discuss the methodology used to analyze the communication related responses on the NPS survey instrument. The information gleaned from this analysis will provide a snapshot of communication skill competency by Navy medical department executives, and will serve as guidance in the development of appropriate Navy health care executive management training and education programs.

### **III. METHODOLOGY**

#### **A. APPROACH TO THESIS**

The interview and questionnaire responses indicated that varied competency levels and perceptions of needs exist among individual Navy health care executives. Nearly all respondents acknowledged they have deficiencies in their educational and knowledge preparation to handle future managerial health-care demands. This thesis analyzes the survey responses to the communication related questions, and then evaluates the differences between the perceived current and required communication skill levels needed by Navy medical department executives. Specifically, this analysis determines any statistically significant differences overall and among descriptive variables (eg. corps, rank, position, education, gender, and years of managerial service) of the individual responses to the communication questions. These variations in management communication abilities will identify management communication needs.

#### **B. CONDUCT OF THE SURVEY**

The data for this study was obtained from a survey instrument developed following the structured interview step of the needs assessment. The survey was sent to approximately 720 senior medical department executives, 476 of which responded,

resulting in a response rate of 66.1 percent. For survey distribution, senior executives were defined as all individuals in positions of executive management at medical treatment facilities, e.g., CO/MC and Directors, individuals who formerly held these positions, and to the extent possible, prospective COs and XOs. Since the survey targeted virtually every executive in Navy Medicine, the data presented in this thesis represents that population.

The purpose of the survey was to validate the primary areas of needs identified during the structured interviews and to define the various competency levels that exist among BUMED executives. Furthermore, the survey completed the second step of the two-step needs assessment process developed by NPS to provide the task and person analysis essential for the development of an executive development program for Navy Medicine. This validation is critical to the needs assessment process because individual executives identified significant deficiencies in their education and knowledge about management issues.

Initial analysis of survey results were confined to descriptive statistics. These statistics measured responses by identified needs' area and associated skill level across demographic specific categories. Frequency distributions and cross-tabulations were used to establish trends for the entire

sample and by demographic specific categories, to include, level of executive position, rank, and corps (Morrison).

This thesis will further identify and isolate significant trends in perceived executive management communication requirements and skill levels. The results will prove invaluable in developing training programs targeted at correcting specific deficiencies.

### **C. SURVEY QUESTIONNAIRE**

The survey questionnaire in Appendix F is divided into two sections: (1) Part 1 with eight major management categories contains sixty managerial activity questions and a section dealing with management education requirements for the major categories; and, (2) Part 2 contains the demographics and management education/training background questions.

#### **1. Managing a Military Medical Treatment Facility-Part 1**

Part 1 of the survey questionnaire is designed to measure three aspects of the respondent's perspectives concerning executive management in Navy Medicine:

1. Their current level of managerial skills for each of the sixty managerial activities questions contained in the questionnaire.
2. Their perception of the required level of skill for each of the sixty management activities an executive must have to function effectively in the respondent's current role in Navy Medicine.
3. The level of need they would attach to each of the major managerial activity groups.

However, while the term "priority" is used to designate the assigned level of need, the alpha managerial activity groups were not ranked against each other. The purpose was for the respondents to indicate their perceived level of educational need within each of the major managerial activity groups.

In providing their responses to the sixty managerial activity questions, the respondents were requested to rate their personal level of expertise and the required skill level in a particular activity on a scale of "1" to "10" with "1" indicating no knowledge or ability in an area, "1" to "3" a low level, "4" to "7" a moderate level, and "8" to "10" a high level. Besides allowing the respondents to indicate their responses more precisely than would be possible on a "4", "6", or even a "7" point scale, the larger scale allows for a greater range of responses (variance) to utilize in subsequent analysis.

The scale provided for the section on management education is similar to the previous scale, however, this scale's groupings indicate the respondent's level of need instead of level of ability.

## **2. Managing a Military Medical Treatment Facility-Part II**

Part 2 of the survey questionnaire requests two separate types of background information from the respondent:

1. Demographic data providing basic individual and job experience information.
2. Management education/training background data indicating prior education and training in management through traditional undergraduate and postgraduate programs, military/civilian programs, and the various short courses provided by the military. Additionally, respondents were asked to list their affiliations with various professional organizations because of the management development requirements inherent in membership.

The survey also emphasized that all the information gathered would be for statistical use only. The survey participants were guaranteed anonymity and there was no attempt by NPS to identify individuals or individual responses. The demographic and management education/training data assisted in the development of identifiable groupings used in the comparative analysis of survey responses.

#### **D. HYPOTHESIS TESTING**

This section describes the general statistical methods in hypothesis testing used in the analysis. The specific hypotheses used in this thesis will be presented in Section 5.

In performing a hypothesis test, first a *null hypothesis* is formulated to describe a theory about the population. In most cases the *null hypothesis* states that any variance found in the population will be due to chance and not to any statistically significant differences within the population. Therefore, the *null hypothesis* provides a frame of reference to contrast an *alternative hypothesis*. The *alternative hypothesis* describes an alternative idea about the population.



Once the null and alternative hypotheses are established, the calculation of a statistic will test the null hypothesis. This test statistic (calculated from the data) is compared to reference values that would be expected if the null hypothesis were true. Results from this comparison is a probability value, or p-value, which interprets the validity of the null hypothesis.

The p-value is the probability that a value of the test statistic, similar to the one obtained, could have occurred if the null hypothesis were true. If the p-value indicates that the value of the test statistic probably could not have occurred by chance, the null hypothesis is not true and we reject the null hypothesis. Conversely, if the p-value indicates that the value of the test statistic could have occurred by chance, the null hypothesis is true and we do not reject the null hypothesis.

Another aspect of the p-value is its ability to determine if the test results are statistically significant. Statistical significance is based on p-values. Typically, a significance level is predetermined prior to the test. The choice of the significance level (or  $\alpha$ -level) depends on the risk of making a Type I error. A Type I error is when we mistakenly reject a true null hypothesis. Traditionally, three levels are commonly used: 0.10 (moderately significant), 0.05 (significant), and 0.01 (highly significant). For example, at a 10 percent significance level the risk of making a type I error is 10 ,

giving a  $\alpha$ -level of .011. If a  $p$ -value is .012, which is less than the  $\alpha$ -level of .011, then the null hypothesis is rejected and the test is statistically significant at the 10 percent level.

#### **E. PREPARATION FOR ANALYSIS**

Since the scope of this thesis is to analyze communication related survey questions, communication questions were selectively identified from the survey questionnaire (see Appendix B). This selection process was accomplished by determining questions that directly or indirectly treated communication techniques or issues. Questions 34, 39, 44, and 53 through 60 were determined to be communication-related. The analysis of the selected communication questions was then completed using SAS statistical package. The analysis programming successfully ran on SAS because of an existing SAS data file created from the survey results and the various statistical capabilities offered within SAS.

Morrison's initial analysis of the communication survey questions results were confined to descriptive statistics. These statistics measured responses by identified needs' area and associated skill level across demographic specific categories. Frequency distributions and cross-tabulations were used to establish trends for the entire sample and by demographic specific categories, including level of executive position, rank, education, years of managerial service, gender, and corps.

The analysis in this thesis determines the statistically significant differences between an individuals' perceived current and perceived required communication skill level for each question overall and by various descriptive variables. A hypothesis test was developed to analyze these differences between groups. When comparing the two groups, the null hypothesis states that the means of both groups are the same, while the alternative hypothesis states that the means are different.

The two independent groups are the responses of the various communication questions perceived current and required skill level. ANOVA's (Analysis of Variance) were used to compute the p-values for comparisons of groups with only two members (e.g. gender).

To further identify important differences with regards to corps, education, level of executive position, and years of managerial service, a hypothesis test is developed to compare more than two groups. When comparing more than two groups, the null hypothesis states that the means for various groups are the same, while the alternative hypothesis states that the various group means are different. Notice that the alternative hypothesis does not specify which means are different from one another but only that some differences exist.

In a statistical test to compare several groups, the hypotheses above are tested by partitioning the total variation

in the data into variation due to differences between groups and variation due to error. The error variation does not refer to mistakes in the data but to the natural variation within a group and possibly to variation due to other factors that were not considered in the experiment. Since this test consists of analyzing the variation in the data, it is called an analysis of variance and is abbreviated as ANOVA. To precisely identify which group mean is statistically different from other several groups, a post hoc test is required.

The best post hoc test to determine which means are statistically different among several groups is the TUKEY test. The SAS users manual describes the TUKEY method as the most viable test for pairwise comparisons. This method was successfully proven in Monte Carlo studies (Dunnnett 1981). Hayter (1984) considers TUKEY more powerful than the Bonferroni, Sidak, or Scheffe methods for pairwise comparisons.

Initially, the data analysis process analyzed descriptive statistics of the overall sample. Then the analysis continued with various ANOVA tests to determine any statistically significant differences among corps, rank, education, level of executive position, and years of managerial service in positions. Finally the TUKEY test isolates the possible differences in perceived current and required communication skill levels among the different groupings at the 0.05 significant level.

To measure the relevancy of DoN short courses on an individual's perceived current and required communication skill level, the sample data set was first divided into two survey respondent categories: those who have and those who have not participated in DoN short courses. With the sample split between the two groups, the one-way ANOVA test determined if there are statistically significant differences between those who have and have not participated in DoN short courses. Next a series of ANOVAs compares both non-participants and participants by corps, gender, education, level of executive position, years of managerial service, and rank. Again the TUKEY test determines any statistically significant differences among those groupings.

Similar to the previous analysis on DoN short courses, the sample data was divided into two survey respondent categories: those who have and those who have not participated in DoD Postgraduate Education. With the sample split between the two groups, the one-way ANOVA test determined if there are statistically significant differences between those who have and have not participated in DoD Postgraduate Education.

After compiling all the data results, this thesis will determine what combination of variables result in both high current and perceived required communication skill levels. This information establishes the profile for the best Navy health care executive in management communication characteristics.

Also, differences in management communication activities will identify management communication needs and facilitate the development of the executive management education (EME) program for Navy medicine.

#### IV. ANALYSIS RESULTS

This chapter analyzes the responses to the following communication skill related questions:

- Question 34      Developing and communicating a vision for the company.
- Question 39      Managing conflict.
- Question 44      Developing subordinates: coaching, teaching, mentoring.
- Question 53      Writing effectively.
- Question 54      Giving positive and negative feedback.
- Question 55      Delivering effective oral presentations.
- Question 56      Listening effectively.
- Question 57      Building and maintaining working and support relationships outside your institution.
- Question 58      Representing the organization to external groups, e.g., public relations functions.
- Question 59      Fostering a climate of open communication.
- Question 60      Conducting meetings effectively.

The answers to these questions measure differences in the respondents' current level of skill in these specific communication related tasks, and the level of skill each perceives is needed to perform in their present role.

This analysis identifies and evaluates the differences, or deltas, between the perceived level of skill required by the

respondents' and their current skill level. The differences are a proxy for the training or education required by the respondents. The delta or gap between the executive communication requirements and the current skill level of executive communication capability varies according to several variables. These variables are an individual's

1. Health care community
2. Rank
3. Organizational position
4. Gender
5. Education level
6. DoD short course training
7. Postgraduate training
8. Years in a managerial position

This chapter first presents the general descriptive statistics of all respondents and then the results and analysis of each research question.

#### **A. REPORTED POPULATION FREQUENCIES**

This section provides general demographic information about the NPS survey population respondents using frequency tables. This information identifies the important characteristics of the population sample.

The data file used in this analysis contains 476 returned surveys, all of which were sufficiently complete to be included in the findings. However, as is normally the case, every respondent did not answer each question. Missing data are listed as "." when included in the tables. In addition, percent columns in tables that do not total 100 are due to rounding.



errors only. Finally, because the information is self-reported, there may be errors that are not identifiable.

## 1. Demographic Data

### a. Rank

Table II displays the respondents' reported ranks. Three individuals did not identify their rank. The "other" rank cohort includes ten officers (lieutenants) and one enlisted (EMCM). Consistent with the goal of targeting "senior" Navy Medical executives, 87.9 percent of the survey respondents are Commanders, the civilian equivalent, and above. The Captain cohort represents 65.6 percent of the respondents.

TABLE II. SURVEY DEMOGRAPHICS BY RANK

Rank	Frequency	Percent
Admiral	10	2.1
Captain/GM15	312	65.6
Commander/GM14	96	20.2
Lieutenant Commander	44	9.2
Other	14	2.9
.	3	0.6

### b. Corps

Table III displays the frequency of responses by corps. The "other" cohort includes two Supply Corps, two civil service, and one enlisted member. The Medical Service Corps (MSC) consists of Health Care Administrators (HCAs) and Allied Health (AH) care providers. Health Care Administrators include

administrative specialists in financial management, planning, health care administration, and patient administration. Allied Health includes health care and science specialists such as biometrics, physiology, psychology, environmental health, physical therapy, pharmacy, podiatry, and similar occupations.

The response rates for the four major categories are roughly the same as the proportion of each category in the survey population. Nurses make up the smallest percentage of the survey population while the largest percentage of respondents are doctors and members of the Medical Service Corps. Dentists make up a large part of the survey population, ironically, few dentists become CCs or XOs.

**TABLE III. SURVEY DEMOGRAPHICS BY CORPS: SURVEY RESPONSE RATES**

Corps	Designator	Surveys Sent (N=720)	Percent of Survey	Responses Received (N=476)	Percent of Respondents
Medical	2100	244	33.9	154	32.4
Dental	2200	124	17.2	97	20.4
MSC/AH/HCA	2300	269	37.4	164	34.6
Nurse	2900	71	9.9	50	10.5
Other		12	1.7	8	1.6

### **c. Organizational Position**

Table IV displays the reported frequencies of organizational position held. The six groups of organizational position were created by condensing survey responses in similar categories. Appendix I contains a breakdown of the responses

placed into each organizational position category. Eight respondents (1.7 percent) did not indicate their organizational position.

TABLE IV. SURVEY DEMOGRAPHICS BY ORGANIZATIONAL POSITION

Organizational Position	Frequency	Percent
Commanding Officer	97	21.4
Executive Officer	22	5.1
Director	143	30.0
Department Head	44	9.0
Operational Forces	16	3.4
Other	96	19.0
.	8	1.7

Again, the responses accurately represent the targeted population of senior Navy Medical Department executives with 65.5 percent in Commanding Officer, Executive Officer, or Director positions within Navy medical facilities and 13.6 percent in positions of significant responsibility within the Operational Forces and "other" cohorts. The "other" cohorts include Clinic Directors, Physician Assistants, and Environmental Health Officers. Appendix I lists all the organizational positions in the data. The data indicates that many respondents have experience in Commanding Officer or Executive Officer billets or are about to move into these billets.

d. Gender

Table V displays the respondents frequency by gender. Females represent 13.2% of respondents; this is consistent with the proportion of women in the targeted population. Most respondents are in the Nurse Corps.

TABLE V. SURVEY DEMOGRAPHICS BY GENDER

Gender	Frequency	Percent
Male	136	43.2
Female	65	13.2
.	15	3.1

e. Education

Table VI displays the respondents reported levels of education. This variable was created from the respondents' educational background by subdividing them into those who hold Bachelors, Masters, and Doctorate degrees. Ninety-nine percent of respondents have degrees. Because of the high education level in the sample, we expect to see high perceived communication.

TABLE VI. SURVEY DEMOGRAPHICS BY EDUCATION

Education	Frequency	Percent
BS	294	39.7
MS	164	24.2
PHD	23	4.8
.	5	1.0

requirements. This would be consistent with the research done by Hudaib, Brooke, Finstuen, and Riley (1993) which showed that as education level increases so does the perceived need for communication skills.

**f. Postgraduate Education/EME**

Table VII displays the reported frequencies of respondents who have attended either DoD postgraduate or executive management education (EME) programs. Appendix F lists DoD postgraduate and executive management training courses. Forty-one percent of the senior medical executives surveyed have attended at least one of the courses. Again we can expect fairly high required communication skill levels to be reported by this sample based on the large percentage of respondents that have received postgraduate or EME training.

**Table VII. SURVEY DEMOGRAPHICS BY DoD POSTGRADUATE**

<b>DoD Postgraduate Education</b>	<b>Frequency</b>	<b>Percent</b>
Participants	196	41.2
Non-Participants	280	58.8

**g. DoN Short Courses**

Table VIII displays the reported frequencies of respondents who have attended at least one DoN short course. A listing of DoN short courses is located in Appendix L. DoN short courses are existing programs which enhance Navy-wide

executive management development. 16.6 percent of senior medical executives report participating in at least one of the D.N short courses.

**TABLE VIII. SURVEY DEMOGRAPHICS BY DoN SHORT COURSES**

DoN Short Course	Frequency	Percent
Participants	169	86.3
Non-Participants	27	13.7

**h. Years of Service in Managerial Positions**

Table IX displays the reported frequencies of years in managerial positions. Four groups of years in managerial positions were formed as seen in Table IX. Seventy percent of the sample have at least five years in managerial service. Only thirty percent have five years or less in managerial positions. The majority of respondents have enough experience to understand the importance of communications skills in management so we expect to see high communication skill requirements from this sample.

**TABLE IX. SURVEY DEMOGRAPHICS BY YEARS OF MANAGERIAL SERVICE**

Years of Managerial Service	Frequency	Percent
0 to 5 years	145	30.5
> 5 to 10 years	173	36.3
> 10 to 15 years	79	16.6
> 15 years	79	16.6

## B. ANALYSIS RESULTS BY RESEARCH QUESTION

1. What are the current skill levels and required skill levels for all respondents (means, modes and frequencies)?

Using the Statistical Analysis System SAS, the following steps were performed:

1. Responses to each question were identified and grouped by question number (i.e., question 34, question 39, etc.).
2. The current level of skill reported for each question was subtracted from the perceived required level of skill reported for the same question to establish the difference, or delta, between the two skill levels. This delta is a measure of the training/educational requirement needed in that skill area.
3. Mean values for the individual questions concerning the current and required skill levels and the deltas were calculated.
4. Frequency of population responses to each question were then calculated.

Appendix A shows the results of these initial data manipulations, and Appendix J provides a dictionary of variable names to assist the reader in identifying specific responses for evaluation. Figure 1 represents all respondents' mean current skills, required skills, and deltas for each of the communication skill questions. This Figure is provided to show the overall population distribution of the responses.

We can see that generally the respondents have high levels of current communication skills (mean of 8.1 on a scale of 1 to 10), with even higher perceived communications

requirements mean is 9.1. The Mean Delta between the current and required skills for all questions is 1.1 which is statistically significant at the .05 level.

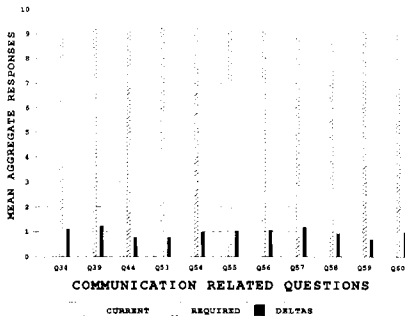


Figure 1 Aggregate Mean Current, Required, And Deltas

These statistically significant deltas in communication competency are consistent with the logic in studies conducted by Mann and Staudenmier (1990) and Sievoking, Nicholas, and Wood (1990). These studies showed that as a managers ability to utilize "in-house experts" in technical areas of management increased, their emphasis on trying to develop interpersonal



communication NSAs intensified. It is the interpersonal skills which a manager needs to successfully negotiate and coordinate assets to accomplish organizational goals.

Figure 1 shows that the smallest delta values are found in question 44 (delta = .76 , developing subordinates; question 33 (delta = .76), writing effectively; and question 39 (delta = .88 , fostering a climate of open communication. We notice a larger gap between current and required skills in questions 39 (delta = 1.21, managing conflict; and question 57 (delta = 1.18), building and maintaining working and support relationships outside your institution.

The following analyses further identifies any statistically significant differences among responses due to particular demographic variables.

## **2. What are the current levels and required skill levels for MSC's Nurses and Physicians? Are there significant differences by corps and between and among corps?**

This section provides the analysis of the communication questions by health care community. Using SAS, the following data manipulations were performed.

1. The responses to each question were grouped according to Corps.
2. An analysis of variance (ANOVA) was then performed to compare the responses of each corps against the responses of the other corps.
3. A TUKEY test was then performed on the ANOVA results to determine which, if any, deltas were statistically significant.

The aggregate mean current skill levels, required skill levels, and deltas for all corps MSC's (Nurses, Dentists and Physicians), the statistically significant ANNs, and the TUXEN results are located in Appendix S. In addition, the mean perceived required skill levels & deltas are graphically displayed in Figures 2 and 3.

In Figure 2 we see that the Nurse corps has higher perceived required skill levels for all questions as compared to HCAs, ARs, MCs, and DCs. This is consistent with the literature and the Naval Postgraduate School research which found nurses use more interpersonal skills in their approach to providing

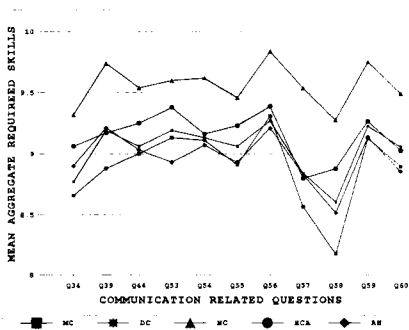


Figure 2 Aggregate Required Skill Level Means by Corps

Health care than the other medical specialties (Franklin, Roberts, and Orlowitz, 11, Winous p.11). Dentists trend lower in their perceived communication skill requirements than any of the other corps perhaps because of their tendency to work alone. Health care administrators have higher required communication skill levels than allied health and medical corps officers because of the interpersonal nature of their jobs. Testing the deltas in Figure 3 will identify statistically significant differences between corps.

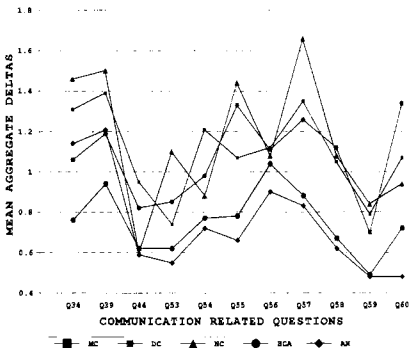


Figure 3 Aggregate Delta Means By Corps

Figure 3 measures the differences (deltas) between the perceived current skill level and the required skill level of health care communities. Figure 3 appears to show large differences between corps for questions 54, 56, 57, and 58. To determine if any of the differences are statistically significant, we first examined the p-value in the ANOVA tables for each question (Appendix B). Table X below summarizes the statistically significant results of the ANOVA.

TABLE X. SUMMARY OF ANOVA TESTS BY HEALTH CARE COMMUNITIES

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant p-value @ 0.05 $\alpha$ -level
Q55 Delivering effective oral presentation	DENTAL CORPS	MSC/ECA	2.54 (4)	0.0394
Q60 Conducting meetings effectively	DENTAL CORPS	MSC/ECA	3.46 (4)	0.0085
	DENTAL CORPS	MSC/AR		

Two of the ANOVAs show a p-value of less than .05; question 55, p-value .0394, delivering effective oral presentations, and question 60 p-value .0085, conducting meetings effectively. However, the large delta for question 57 warrants further investigation, and we find that its p-value of .0819 is not statistically significant.

To determine which corps' are identifying a statistically significant skill gap in the communications KSAs represented by questions 55 and 60, we must examine the

corresponding TUKEY tests Appendix B.. A portion of the TUKEY table for question 55 is provided on the following page to assist the reader.

Tukey's Studentized Range (HSD) Test for variable: Q55DELTA  
 NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 417 MSE= 2.550025  
 Critical Value of Studentized Range= 3.975

Comparisons significant at the 0.05 level are indicated by '\*\*\*'.

GROUP Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
3 - 2	-0.6516	0.1101	0.8718
3 - 1	-0.3381	0.3746	1.0873
3 - 4	-0.1122	0.6551	1.4223
3 - 5	-0.2364	0.7848	1.8060
2 - 3	-0.8718	-0.1101	0.6516
2 - 1	-0.3033	0.2645	0.8324
2 - 4	-0.0900	0.5450	1.1799
2 - 5	-0.2512	0.6747	1.6007

Normally, the corps that has a statistically significant delta will be marked with an asterisk on the TUKEY table. The TUKEY test for question 55 delta does not identify which groups are different by identifying them with asterisks. However, closer investigation shows that the lower confidence limit for the comparison between members of the Dental Corps (group 2) and the HCA (group 4), is very close to being positive (-.09). This implies that the delta will almost always be positive; therefore, there will always be a gap between current and required skill levels that is large enough to be statistically significant. This signifies that dentists and health care administrators have a greater delta between

each other at the .05 level. Compared with all of the other groups. Specifically, dentists identify themselves as weaker in delivering effective oral presentations than health care administrators. The variances between Allied Health, Nurse Corps, and Medical Corps are not statistically significant.

Part of the TUKEY table for question 41 is shown below. Subsequent TUKEY tables are provided in noted Appendices.

**Tukey's Studentized Range (HSD) Test for variable: Q60DELTA**  
**NOTE:** This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 416 MSE= 1.961137  
 Critical Value of Studentized Range= 3.875

Comparisons significant at the 0.05 level are indicated by\*\*\*.

GROUP Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
2 - 1	-0.2231	0.2748	0.7728	
2 - 3	-0.2678	0.4002	1.0682	
2 - 4	0.0644	0.6228	1.1812	***
2 - 5	0.0454	0.8574	1.6695	***

The TUKEY test for question 60 delta clearly shows which groups are different by identifying them with asterisks. We can determine that dentists (group 2) feel less comfortable at conducting meetings effectively than both health care administrators (group 4) and allied health care providers (group 5). The variances between nurses (group 3) and physicians (group 1) are not statistically significant.

In both instances, dentists perceive the greatest need for training in the areas of delivering effective oral

presentations and conducting meetings effectively. These perceptions by Dental Corps respondents are consistent with Hamilton's observations regarding the characteristics of medical training as an explanation for the lack of management skills found in dentists (Hamilton p. 38).

3. What are the current and required skill levels by rank, gender, education, position, years of service in managerial positions? Are there statistically significant differences because of gender, education, etc.? Are there differences in and between and among corps?

This section continues to identify any statistically significant deltas by rank, gender, education, level of executive position, and years of management experience. Using SAS, the following data manipulations were performed.

1. The responses to each question were grouped according to the variables rank, gender, education, position, and years in managerial positions.
2. An ANOVA was then performed on the mean deltas to each question (by each variable group) to determine if there are any statistically significant differences in their responses.
3. A TUKEY test was then performed on the ANOVA results to determine which, if any, deltas were statistically significant.

a. Rank

For general comparison, Figures 4 and 5 show the mean current and perceived required communication skill levels

by rank. The statistically significant ANOVA and Tukey results are located in Appendix C.

Figure 4 shows Admirals have higher current communication skill levels across all questions compared to other ranks. This is consistent with the expected level of skill in senior executives who have held senior management positions necessary for selection to flag rank. The graph also indicates that Captains, Commanders, and Lieutenant Commanders have varied responses to the different communication related questions with no clear correlation between higher grade obtainability and a perceived higher

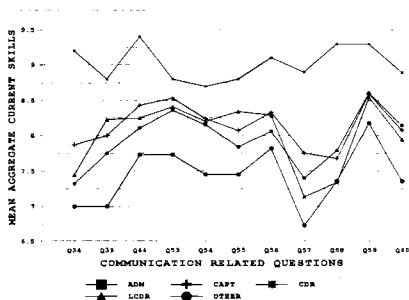


Figure 4 Aggregate Current Skill Level Means By Rank



skill level. The lower current skill levels of the "other" cohort are consistent with junior officers' lack of experience in management positions.

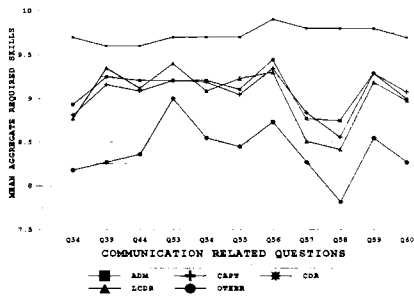


Figure 5 Aggregate Required Skill Level Means By Rank

Figure 5 shows Admirals also identify a higher required required skill level across all communication skills. We can not determine if this signifies a greater importance for these skills at the Admiral level, or a different set of perceptions based on more time and experience in the military dealing with interpersonal relations. Again Captains, Commanders, and Lieutenant Commanders lack a consistent pattern between their rank and perceived required skill level. The

lower current perceived training skill levels of the "capt" cohort is consistent with what would be expected from junior officers answering survey questions based on what is required in their current rank.

To determine if any of the differences are statistically significant, we again examined the ANOVA tables.

Appendix C, and Table XI below summarizes two statistically significant findings of the ANOVA. The results of the ANOVA is:

**TABLE XI. SUMMARY OF ANOVA TESTS BY RANK**

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value ? 0.05 $\alpha$ -level
	COMMANDER	CAPTAIN		
Q34 Developing and communicating a command vision			2.72 (4)	0.0294

the variable rank identified only the delta for question 34, developing and communicating a vision for the command, as statistically significant at the .05  $\alpha$  level with a p-value of .0094. The TUKEY test (Appendix C) shows that Commanders give a greater mean delta than Captains as compared to the other ranks. The delta signifies that Commanders identify themselves as needing more training in developing and communicating a vision for the command than Captains. This difference is a function of not having encountered the leadership requirement of developing and communicating a command vision at the rank of Commander. There are no statistically significant differences between Admiral, Lieutenant Commander, and Other ranks.

## b. Gender

Figures 4, 5, and 6 show the overall mean perceived required, current skill levels and deltas by gender. Figure 6 shows that females perceived greater skills requirements across all questions as compared to males. Managing conflict ranks as the highest perceived required skill for females. Males identify listening effectively as their greatest perceived needed skill.

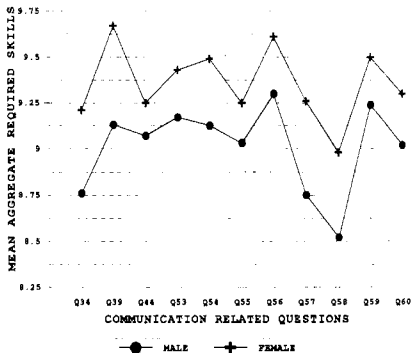


Figure 6 Aggregate Required Skill Level Means By Gender

Figure 7 displays the current skill level of all respondents by gender. Again we see that both male and female responses closely mirror each other with exceptions at Question 44, developing subordinates, question 54, providing feedback and question 56, listening effectively. Females have slightly higher current skills in these communication KBAs than males.

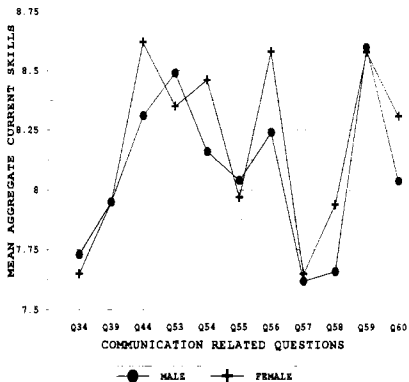


Figure 7 Aggregate Current Skill Level Means By Gender

Figure 8 displays the deltas by gender, across all questions. Females appear to have higher deltas in questions 34, 39, 51, and 57, compared to males.

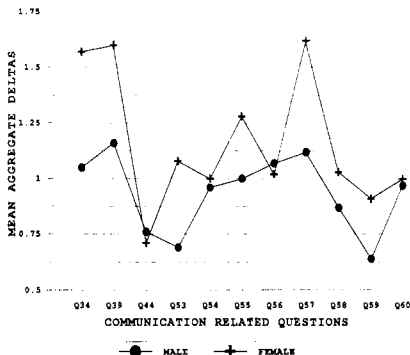


Figure 8 Aggregate Delta Means By Gender

The ANOVA and TUKEY results, located in Appendix C, identify the deltas on questions 34, 53, and 57 as statistically significant at the .05  $\alpha$  level. Table XII provides the statistically significant summary of the ANOVA test.

TABLE XII. SUMMARY OF ANOVA TESTS BY GENDER

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
	FEMALE	MALE		
Q34 Developing and communicating a command vision			4.29 (1)	0.0389
Q53 Writing effectively			4.59 (1)	0.0327
Q57 Building & maintaining working/support relationships			4.24 (1)	0.0401

For question 34 (p-value .039), developing and communicating a command vision, women feel that they have a greater deficiency than men in this skill. Question 39 is not statistically significant at the .05  $\alpha$  level (p-value .058); however, it does indicate that women perceive themselves as less able to manage conflict than men. For question 53 (p-value .033), writing effectively, women believe they need more training in writing effectively to reach their perceived required level of competence than men. In question 57 (p-value .040), building and maintaining working and support relationships outside the institution, women show a statistically significant greater need for training/education than men.

### c. Education

Figures 9 and 10 show the mean perceived required skill levels and deltas for the variable education. Education level is coded as Bachelors Degree, Masters Degree or Doctorate.

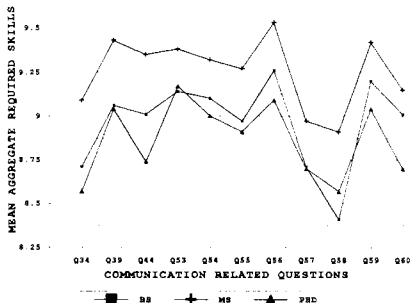


Figure 9 Aggregate Required Skill Level Means By Education

Figure 9 shows those respondents holding a Masters degree have higher perceived required skill levels across all questions than PhDs and BS degree holders.

Figure 10 shows that holders of Bachelors degrees have higher deltas in virtually all skill categories. The holders of Masters degrees have the next largest aggregate deltas with PhDs averaging the smallest deltas. This graph suggests that the higher level of education the individual has, the more competent they tend to be in these communication KSAs.

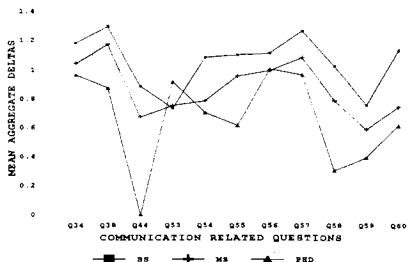


Figure 10 Aggregate Delta Means By Education

The ANOVA test (Appendix C) on the variable education shows that two of the deltas are statistically significant at .05  $\alpha$  level. A summary of the ANOVA test is shown below in Table XIII.

TABLE XIII. SUMMARY OF ANOVA TESTS BY EDUCATION

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
Q44 Developing subordinates; coaching, teaching and mentoring	BACHELOR	PHD	3.96 (2)	0.0197
Q60 Conducting meetings effectively	BACHELOR	MASTER	4.18 (2)	0.0159



Question 44, developing subordinates: planning, teaching, mentoring, has a p-value of .0127. The TUVBY tests show that the largest difference in the ability to develop subordinates is between holders of Bachelors degrees and those with MEds. MEds are more skilled at performing this NSA than Bachelor degree holders. Question 67, conducting meetings effectively, has a p-value of .0059. In this case the TUVBY test shows that those with Bachelors degrees are less adept at conducting meetings effectively than those holding a Masters degree.

#### d. Position

Figure 11 displays the mean deltas for all respondents by position held. Although there are some apparent large differences among deltas the ANOVA test did not detect

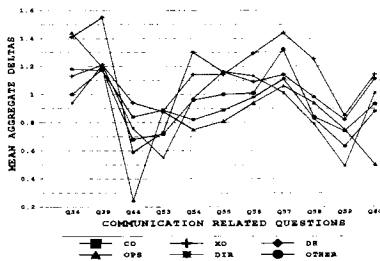


Figure 11 Aggregate Delta Means By Position

any statistically significant differences among deltas at the .05 level for this variable.

#### **e. Years in Managerial Positions**

This variable in the original data file contains integer responses of years and months in managerial service. The number of variables these integer responses created made it difficult to analyze any potential response variances due to years of managerial experience. To identify possible variances due to years in a management position, we created the following groupings:

**Group 1** - 0 to 5 years in managerial position.

**Group 2** - >5 to 10 years in managerial position.

**Group 3** - >10 to 15 years in managerial position.

**Group 4** - >15 years in managerial position.

Figures 12 and 13 display the mean current and perceived required skill levels of the four groups for each question. Figure 14 displays the mean deltas for each group.

In Figure 12 we see that as years in a managerial position increase the current skill ability in the communication KSAs goes up as well. This makes intuitive sense as more experience tends to increase an individuals' communication abilities. This finding is congruent with Badaway's statement that managers are not born with the

BOAs to be effective managers, but that these skills are developed as they progress into management (Barnett 2011).

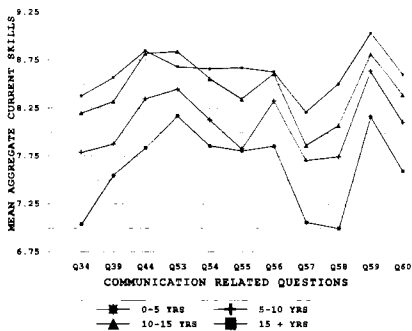


Figure 12 Aggregate Current Skill Level Means By YrsMgtExp

In Figure 13 we see a clustering into two pairings of respondents perceived required skill levels. The first pair is groups one and two while the second pair is groups three and four. The two less experienced groups have a lower current skill level than those in the two more experienced groups. Again, the results seem to

reveal, those individuals with more managerial experience realize the importance of mastering communication KSAs in order to be more effective managers.

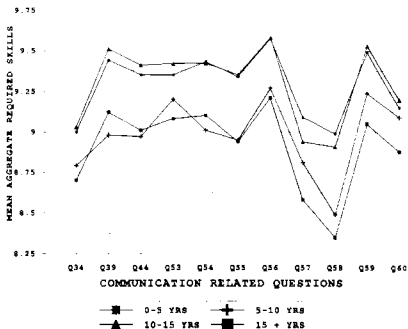


Figure 13 Aggregate Required Skill Level By YrsMgtExp

In Figure 14 we can see that some variation in the size of the deltas appears. Specifically, we notice that the deltas for questions 34, 39, 44, 58, and 60 are larger compared to the other questions. The ANOVA tests confirm the significance of these variances, and the subsequent TUKEY tests identify which groups are

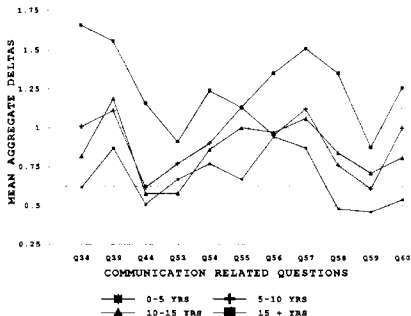


Figure 14 Aggregate Delta Means By YrsMgtExp

significantly different from the others. A summary of the ANOVA test is shown below in Table XIV.

Question 34, developing and communicating a command vision, has a p-value of .0002. The difference lies between group 1 (0 to 5 years) and all other groups. The mean delta between group 1 and 2 (>5 to 10 years) is .54, between group 1 and 3 (>10 to 15 years) .58, and between group 1 and 4 (>15 years) .63. In other words, individuals at different levels of managerial experience vary in their perceptions of the importance in developing and communicating a command vision.

TABLE XIV. SUMMARY OF ANOVA TESTS BY YEARS OF MANAGERIAL EXPERIENCE

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
Q34 Developing and communicating a vision for the command	GROUP 1	GROUP 2 GROUP 3 GROUP 4	6.75 (3)	0.0002
Q39 Managing conflict	GROUP 1	GROUP 4	3.27 (3)	0.0210
Q44 Developing subordinates: coaching, teaching and mentoring	GROUP 1	GROUP 2 GROUP 3 GROUP 4	4.99 (3)	0.0020
Q58 Representing the organization to external groups	GROUP 1	GROUP 2 GROUP 4	4.92 (3)	0.0022
Q60 Conducting meetings effectively	GROUP 1	GROUP 4	4.41 (3)	0.0045

Question 39, managing conflict, has a p-value of .021. Group 1 individuals have a statistically significant higher mean delta than those in group 4. This difference reinforces the idea that the more experience an individual has the better able they are to manage conflict.

Question 44, developing subordinates: coaching, teaching, mentoring, has a p-value of .002. The results are similar to those in question 34; individuals at different levels of managerial experience vary in their perceptions of the importance in developing subordinates.

Question 58, representing the organization to external groups, has a p-value of .0022. In this TUKEY we see

group 1 has a statistically significant gap compared to those in groups 2 and 4. Those less experienced and usually less senior in grade are not as practiced in performing this KSA. Question 10, conducting meetings effectively, has a p-value of .046. In this TUKEY the difference is again between groups 1 and 4, signifying that the more experience one has the more likely they are to feel capable of conducting meetings effectively.

**4. What are the current and required communication skill levels for those who have attended any DoN short courses? Does short course training effect current and required communication skill levels? Are there statistically significant differences between corps and position with and without DoN short course training?**

In this section, the aggregate mean current skill levels, required skill levels, and deltas for responses were separated into two groups: those respondents who have attended short course training and those who have not. A list of all DoN short courses that are used in this analysis can be found in Appendix L. A cross tabulation of participants in DoN short courses by DoN short courses taken is located in Appendix K.

As Appendix M illustrates, it is impossible to determine which course, or combination of short courses, is responsible for a change in an individual's communication skill level. As

an example of this overlap, of the 118 participants in Strategic Metrics, Readiness And Leadership (RSL), 33 percent have also attended the Supervisory Training Officer Executive Officer POC/XO courses, 58 percent the Leader Development Command (LMTC), and 53 percent the Leader Development Senior (LMTS).

To solve this overlap problem, we divided the sample into two categories: short course participants (56.8 %) and non-participants (43.2 %). Using SAS, the following data manipulations were performed:

1. The responses to each question were grouped according to whether or not the individual had attended at least one DoN short course.
2. An ANOVA was then performed on the mean deltas of the responses to each question (by each group) to determine if there are any statistically significant differences in responses by those who have and who have not attended DoN short courses.
3. A TUKEY test was then performed on the ANOVA results to determine which, if any, deltas were statistically significant.

The significant ANOVA and TUKEY results are located in Appendix D. Figures 13, 16, and 17 graphically portrait the current, the perceived required skill levels, and the deltas of those who have attended at least one DoN short course and those who have not.



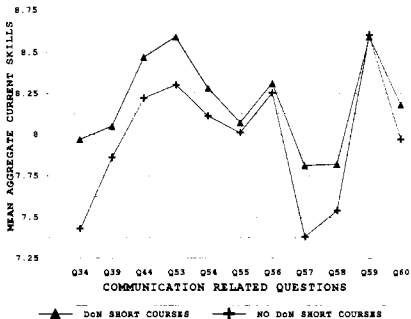


Figure 15 Aggregate Current Skill Level Means By DoN Short Courses

In Figure 15 those who have attended at least one DoN short course view their current communication skill capability as slightly higher than those who have not. This graph appears to illustrate that short course training is effective at improving an individual's perceived current communication skill level for all of the communication related questions except question 59, fostering a climate of open communication.

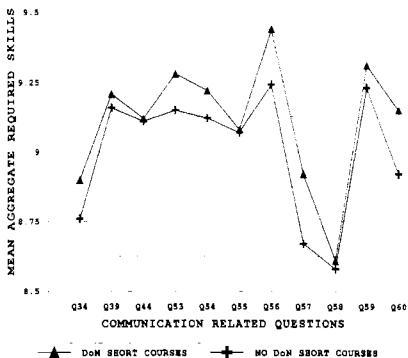


Figure 16 Aggregate Required Skill Level Means By DoN Short Courses

In Figure 16 we see that those who have attended DoN short course training identify a slightly greater requirement as well for communication skill mastery than those who have not. This could be a function of greater exposure and understanding of the importance of these KSAs through their short course training experience.

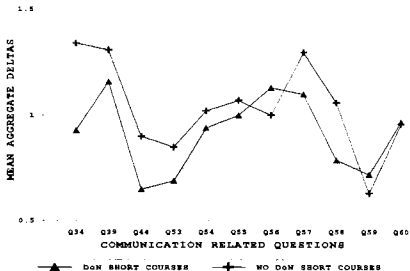


Figure 17 Aggregate Delta Means By DoN Short Courses

In Figure 17 we see an apparent significant delta between those who have attended and those who have not on question 34, developing and communicating a command vision. To determine if question 34 is statistically significant, we again examined the ANOVA tables (Appendix D). Table XV below summarizes the statistically significant findings of the ANOVA

TABLE XV. SUMMARY OF ANOVA TESTS BY DoN SHORT COURSE

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
	NON PARTICIPANT	PARTICIPANT		
Q34 Developing and communicating a command vision			5.51 (1)	0.0193

test for question 34. The ANOVA does identify the mean delta for question 34 as statistically significant with a p-value of .0093. Those who have not attended DoN short course training identify themselves as needing more training in the KSA of developing and communicating a command vision. There are no other statistically significant deltas between these two groups.

### **1. Composite Variables**

To determine if there are any statistically significant differences by corps and position due to DoN short course training, several composite variables were created. The variables we created are those respondents with and without DoN short course training by corps and those with and without DoN short course training by position. The composite variable's aggregate mean current skill levels, required skill levels, deltas, ANOVA and TUKEY results are provided in Appendix D.

#### **a. DoN Short Course by Corps.**

The ANOVAs and TUKEY tests for the first set of composite variables (those broken down by health care communities) show that there are four communication KSAs in which physicians who have attended at least one DoN short course have smaller mean deltas than physicians who have not attended any DoN short courses. Table XVI shows the statistically significant findings of the ANOVA test for question 34, developing and communicating a command vision (p-value .0041),

TABLE XVI. SUMMARY OF ANOVA TESTS BY COMPOSITE VARIABLE  
(DoN SHORT COURSE BY CORPS)

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
Q34 Developing and communicating a command vision	NON PARTICIPANT @ MEDICAL CORPS	PARTICIPANT @ MEDICAL CORPS	8.52 (1)	0.0041
Q44 Developing subordinates: coaching, teaching, and mentoring	NON PARTICIPANT @ MEDICAL CORPS	PARTICIPANT @ MEDICAL CORPS	4.30 (1)	0.0398
Q53 Writing effectively	NON PARTICIPANT @ MEDICAL CORPS	PARTICIPANT @ MEDICAL CORPS	6.75 (1)	0.0103
Q58 Representing the organization to external groups	NON PARTICIPANT @ MEDICAL CORPS	PARTICIPANT @ MEDICAL CORPS	7.42 (1)	0.0072

question 44, developing subordinates: coaching, teaching, and mentoring (p-value .0398); question 53, writing effectively (p-value .0103), and question 58, representing the organization to external groups (p-value .0072).

This shows that doctors who have attended at least one short course feel better able to perform these four KBAs than those doctors who have no attended short course training.

**b. DoN Short Course by Position.**

The ANOVAs and TUKEY tests for the second set of composite variables (those broken down by organizational

positions show that there are three positions that have statistically significant deltas. These statistically significant composite variables are shown below in Table XVII.

TABLE XVII. SUMMARY OF ANOVA TESTS BY COMPOSITE VARIABLE  
(DoN SHORT COURSE BY POSITION)

Communication Related Questions	Significance Between Deltas		F-test (df)	Significant P-value @ 0.05 $\alpha$ -level
Q59 Fostering a climate for open communication	PARTICIPANT @ DEPARTMENT HEAD	NON PARTICIPANT @ DEPARTMENT HEAD	4.23 (1)	0.0459
Q58 Representing the organization to external groups	NON PARTICIPANT @ OPERATIONS OFFICER	PARTICIPANT @ OPERATIONS OFFICER	10.19 (1)	0.0065
Q34 Developing and communicating a vision for the command	NON PARTICIPANT @ DIRECTOR	PARTICIPANT @ DIRECTOR	12.07 (1)	0.0007

Directors who have attended DoN short course training have a statistically significant smaller mean delta than those directors who have not attended for question 34, developing and communicating a command vision. This result could be attributed to the awareness of the value of this KSA gleaned from the short course training.

Operational officers who have attended DoN short course training display a smaller mean delta in question 58, representing the organization to external groups, than those operational forces respondents who have not attended DoN short

course training. Those with short course training feel more adept with dealing with outside organizations, such as the media.

Ironically, Department heads who have attended DoN short course training display a larger delta for question 6b, fostering a climate of open communication p-value .0007 than those department heads who have not. They identify a greater need for training in this area than those department heads who have not attended DoN short course training. This could be attributed to an awareness of the importance of this KSA that their contemporaries may not have.

**5. What are the current and required communication skill levels for those who have attended DoD postgraduate education programs and Executive Management Programs? Does this education effect current and required communication skill levels?**

In this section, the aggregate mean current skill levels, required skill levels, and deltas for responses were separated into two groups: those respondents who have attended DoD postgraduate education or Executive Management Education (EME) courses, and those who have not. A list of those education courses classified as DoD postgraduate courses are in Appendix K. Using SAS, the following data manipulations were performed.

1. The responses to each question were grouped according to whether or not the individual had attended at least one DoD postgraduate education program.

2. An ANOVA was then performed on the Mean deltas of responses to each question by each variable group to determine if there are any statistically significant differences in responses by variable.
3. A TUKEY test was then performed on the ANOVA results to determine which, if any, deltas were statistically significant.

The significant ANOVA and TUKEY results are located in Appendix E. Figures 18, 19, and 20 graphically portray the current, the perceived required skill levels, and the deltas of those who have attended DoD postgraduate education and those who have not.

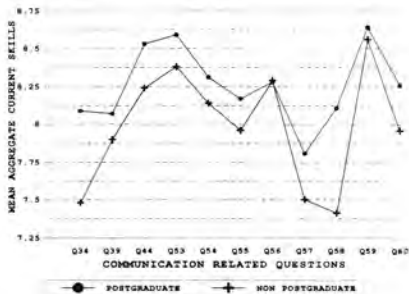


Figure 18 Aggregate Current Skill Level Means By Postgraduate

In Figure 18 we see that those who have attended DoD postgraduate education or EME tend to have slightly higher



current communication skill levels. Thus, the graph indicates, as one would expect, that postgraduate training is effective at improving an individual's perceived current skill level for communication related questions, except question 56, listening effectively.

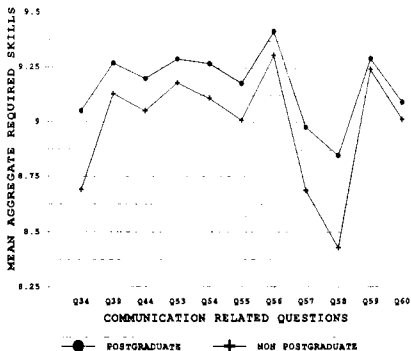


Figure 19 Aggregate Required Skill Level Means By Postgraduate

In Figure 19, we see that those who have attended DoD postgraduate education or EME courses also identify a greater skill level requirement than those who have not. Again, this

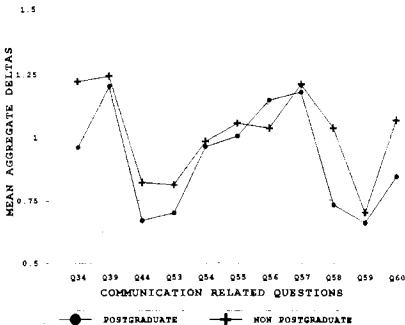


Figure 20 Aggregate Delta Means By Postgraduate

Increased perceived skill requirement could have resulted from their postgraduate and executive management educational background.

In Figure 20 we see that the deltas are fairly close in almost all communication KSAs. The overall trend is similar between those who have and those who have not attended DoD postgraduate education. In fact, the ANOVAs and TUKEY tests do not identify any statistically significant differences among the

communication KSAs between those who have and those who have not attended full postgraduate education programs.

6. Do any combination of variables result in high current communication skill levels?

For communication KSAs the combination of variables that result in the highest current skill levels are displayed in Table XVIII. To interpret this table, we will use question 34

**TABLE XVIII. VARIABLES WITH HIGH PERCEIVED CURRENT SKILLS**

COMM QUEST	CORPS	RANK	POST	GENDER	EDUC	YOS	DoN SHORT	DoD POSTGRAD
Q34	HCA	ADM	CO	MALE	MS	4	YES	YES
Q39	AN	ADM	XO	MALE	MS	4	YES	YES
Q44	NC	ADM	XO	FEMALE	MS	4	YES	YES
Q53	HCA	ADM	CO	MALE	MS	3	YES	YES
Q54	NC	ADM	OTHER	FEMALE	MS	4	YES	YES
Q55	HCA	ADM	DIR	FEMALE	MS	4	NO	YES
Q56	NC	ADM	OTHER	FEMALE	MS	3	NO	YES
Q57	AN	ADM	OPS	MALE	MS	4	YES	YES
Q58	HCA	ADM	CO	FEMALE	MS	4	YES	YES
Q59	NC	ADM	CO	FEMALE	MS	4	NO	YES
Q60	NC	ADM	CO	FEMALE	MS	3	YES	YES

as an example. The combination of variables producing the highest perceived current skill levels are found in individuals who meet a certain variable composition. The variable composition that produces the highest current skill level for question 34 is: Medical Service Corps/HCA, Admiral, Commanding Officer, male, holders of a masters degree, with greater than

15 years of managerial experience, having participated in a DoN short courses and IoD postgraduate training/education.

Overall, the corps with the highest current skill level is the Medical Service Corps (MSC/AM). This is reasonable given their managerial training and education background. Furthermore, in Table XVIII we see that Admirals have the highest reported current skill levels compared to other ranks, while the position of Commanding Officer (various ranks) reports the highest current skill levels compared to other positions.

Females (who for the most part are nurses in this study) identify themselves as having higher overall current skill levels than males. The nurse corps identifies itself as having higher overall current skill levels in these communication XfAs, which is reasonable considering the interpersonal nature of nurses work. Masters degree holders have higher current levels of communication skills than bachelor and doctorate degree holders. Those who have attended DoN short courses and IoD postgraduate education programs also have higher perceived current skills as opposed to those who have not attended these programs. Just as continuing education increases an individuals perceived current skill level, Table XVIII also shows as managerial experience increases, so too does current communication skill level. This is demonstrated by those with greater than 15 years of managerial experience displaying the highest current communication skill levels.

7. Do any combination of variables result in high perceived required communication skill levels?

For communication KSAs, the combination of variables that result in the highest perceived required skill levels are displayed in Table XIX. To interpret this table again we will use question 34 as an example. The combination of variables producing the highest perceived required skill levels are found in individuals who meet the following variable composition: Medical Service Corps/AH, Admiral, Operations Officer, female, holders of a masters degree, with greater than 11 to 15 years of managerial service, participated in a DoN Short Course, and postgraduate education.

**TABLE XIX. VARIABLES WITH HIGH PERCEIVED REQUIRED SKILLS**

COMM QUEST	CORPS	RANK	POST	GENDER	EDUC	YOS	DoN SHORT	DoD POSTGRAD
Q34	AH	ADM	OPS	FEMALE	MS	3	YES	YES
Q39	NC	ADM	NO	FEMALE	MS	3	YES	YES
Q44	AH	ADM	NO	FEMALE	MS	3	NO	YES
Q53	NC	ADM	OPS	FEMALE	PHD	3	NO	YES
Q54	HCA	ADM	CO	FEMALE	MS	3	NO	YES
Q55	AH	ADM	CO	FEMALE	PHD	4	NO	YES
Q56	NC	ADM	OTHER	FEMALE	MS	3	YES	YES
Q57	NC	ADM	OPS	FEMALE	MS	4	YES	YES
Q58	HCA	ADM	CO	FEMALE	MS	4	YES	YES
Q59	NC	ADM	DIR	FEMALE	MS	3	YES	YES
Q60	NC	ADM	CO	FEMALE	MS	4	YES	YES

Once again, the Nurse Corps has the highest perceived required skill level. In Table XIX, we see that Administrators have the highest reported perceived required skill levels compared to other ranks, while respondents in the position of Training Officer various ranks report the highest perceived required skill levels compared to other positions.

Females', most of whom are nurses, identify themselves as having higher overall perceived required skill levels than males. Masters degree holders have higher perceived required levels of communication skills, as do those who have attended DoN short courses and DoD postgraduate education programs. Just as continuing education increases an individual's perceived required skill level, Table XI also shows as managerial experience increases, so to does perceived required communication skill level. In this instance those with greater than 10 and up to 15 years of managerial position service identify themselves as having a greater communications skill level requirement.

This chapter analyzed the differences in the respondents' current level of skill on the NPS survey communication related questions, and the level of skill each perceived required to perform their job. Based upon these findings, the next chapter will present the conclusions and recommendations.

## V. CONCLUSIONS AND RECOMMENDATIONS

This thesis's hypothesis is that within Navy medicine a gap exists between perceived executive management communication skills requirements and the corresponding level of executive management communication capability. The gap varies across health care community, race, organizational position, education level, gender, years of managerial experience, and whether or not an individual has attended DoN short courses or DoD postgraduate training. Having completed the analysis of the survey responses to the communication skills related questions, we present the following conclusions and recommendations.

### A. RESEARCH CONCLUSIONS

1. The analysis in Chapter IV reveals a consistent gap between the respondents' current communications capabilities and their perceived required capabilities.

This gap, or delta, is evident across all communication skill related questions which indicates that the current communications capabilities of senior Navy medical executives consistently fail to meet the reported required level of skill for the position. The smallest gaps are reported in the KSAs of developing subordinates, writing effectively, and fostering a climate of open communication. It is reasonable to expect strength in

these areas from this sample of relatively senior officers because military officers practice these skills early in their careers.

Managing conflict and building and maintaining working and support relationships outside the institution show the largest gaps. Junior officers normally do not practice these skills. Most conflict is handled by senior enlisted personnel, and there is little requirement to establish relationships with external organizations. However, as an individual gains seniority these skills become more necessary. Managing conflict involves managing conflict among subordinate officers, a task that can not be delegated to enlisted personnel, and the external liaison that was once conducted by the junior officers' superior is now his responsibility to conduct.

2. The Medical Corps, Nurse Corps, and Allied Health cohorts demonstrated similar responses to the communication related questions. The data reveals little variance in their deltas. However, Nurse Corps has the highest perceived required skill levels across all communication questions, while dentists have the lowest.

The Dental Corps data does show statistically significant larger gaps between current and required skills levels in the areas of delivering oral presentations and conducting meetings effectively. This result may be caused by dentists tendency to work more independently than the other cohorts. Conversely, Health Care Administrators are the most competent at delivering effective oral presentations and



conducting meetings effectively. These results are reasonable considering the relatively extensive management training in the HDA education pipeline, and their junior officer management requirements.

3. The Captain, Commander and Lieutenant Commander cohorts have similar patterns in both current and required communication skill levels. The Admiral cohort reported higher values in both current and required skill levels while also demonstrating the smallest deltas for all rank cohorts.

The higher reported skill levels of Admirals were expected because of their senior positions and their executive management career development. Junior officers reported lower values in both current and required communication skill levels. These lower skill levels also were expected because of their inexperience in their current position and answering a survey concerning what is required of that position. Logically we expect that as they gain rank the reported required skills would also rise with the additional responsibilities of higher rank.

Commanders identify a statistically significant skill gap in developing and communicating a vision for the command, while Captains demonstrate the smallest delta in the performance of this skill. The large delta for Commanders could be the result of their facing this leadership responsibility for the first time in their career.

In the analysis by gender, females tend to have higher required skill levels than males across all communication skill

positions. Females also have statistically significant gaps between current and required communication skill levels for the following KSAs: managing conflict, writing effectively, and building and maintaining working and support relationships outside the organization. These significant deltas are not unexpected given that the majority of females are nurses and nursing requires high levels of skill in those KSAs. Also, this indicates that nurses feel they are not receiving the proper training for their job.

The analysis by education level reveals that current and required skill levels increase with educational attainment. Two communication KSAs were statistically significant: developing subordinates and conducting meetings effectively. Holders of PhDs are significantly more capable of developing subordinates than those respondents holding only a bachelors degree. Masters degree holders are more effective at conducting meetings than those with only a bachelors degree.

The analysis by years of managerial service reveals that current and required communication skills increase throughout the four groupings by years of managerial experience. Two skills had deltas which were statistically significant: developing and communicating a command vision, and developing subordinates. The analysis demonstrated that as years of managerial service increase, the ability to develop and

communicate a command vision also increases. This finding makes intuitive sense since most officers are not required to develop and communicate a command vision until a relatively senior grade. The skill of developing subordinates: coaching, teaching, mentoring increases with years of managerial experience as well. Again, this finding is reasonable considering that as rank increases, so does the requirement to develop subordinates.

4. The current and perceived required communication skill levels both increase for individuals who have attended DoN Short Course training.

Analysis by DoN Short Course reveals two cohorts with statistically significant differences between those in the cohort who attended and those who did not attend DoN Short Course training. Specifically, the analysis reveals that Physicians who have not attended at least one DoN short course have statistically significant gaps in their ability to develop and communicate a command vision, develop subordinates, write effectively, and represent their organization to external institutions. Physicians who have attended at least one DoN Short Course have significantly smaller gaps in these skill areas. Additionally, Department Heads who have attended DoN short courses are more effective at fostering a climate of open communication than their peers who have not attended a DoN Short Course.

5. The analysis by DoD Postgraduate or Executive Management Education shows that there are no statistically significant differences in responses between those who have attended DoD postgraduate education or EME courses and those who have not.

However, those respondents who have participated in a postgraduate education program, in general, have smaller deltas between current and perceived required communication skills. These small deltas, averaging 0.18, indicate that attending DoD postgraduate or EME courses provide no statistically significant effect in preparing executives for war communication KIRs.

**6. Combination of variables resulting in reported high current communication skill levels.**

The analysis reveals that an individual with the highest current communication skill levels is a male Medical Service Corps Admiral holding a Masters degree. He is a Commanding Officer with more than fifteen years of managerial experience. This individual will have attended at least one DoD short course and either DoD postgraduate or executive management education during his career.

**7. Combination of variables resulting in reported high perceived required communication skill levels.**

The analysis reveals that an individual with the highest perceived required communication skill levels is a female Nurse Corps Admiral holding a Masters degree. She is a Commanding Officer with between ten and

fifteen years of managerial experience. This individual will have attended at least one JCN Short Course and either an postgraduate or executive management education during her career.

#### **8. Comments**

Analysing the gaps between the current and perceived required communication skill levels has enabled us to better identify who (in general) would benefit from a modular executive communication skill program that will provide appropriate communication skill training and experience in the beginning of an individuals' term of service. This training will improve the communication skill performance of individuals early in their career and enhance their ability to contribute to the overall success of Navy Medicine for a longer period of time.

#### **B. RECOMMENDATIONS**

The following recommendations are provided based on the analysis in Chapter IV and the conclusions in this chapter.

1. Throughout the sample the aggregate means show consistent positive gaps between the current level and the required level of executive communication skill. This finding indicates the need for the development of an executive management education (EME) program containing a series of communication training modules. These modules would target communication skill shortfalls among individuals within Navy Medicine (e.g., dentists and nurses).

3. The analysis in this thesis was limited to the corps, rank, organizational position, education, and gender cohorts. Analysis utilizing career lengths, time in current position, medical facility size, and other variables would provide additional information for the identification of executive communication development requirements and greatly assist in the development of a training profile for Navy Medical Department personnel.
5. Additional analyses of factors such as the impact of management short course training on management communication skill levels should be pursued. The analysis in this thesis showed the need for a survey instrument that specifically identifies the various short course and postgraduate training effects on perceived executive management communication skills abilities.
4. The analysis in this thesis was limited to Navy Medicine. Analyses utilizing branch of service and civilian cohorts would provide additional information for the identification of executive communication development requirements and greatly assist in the development of a training program for joint medical service personnel.

# APPENDIX A

## COMMUNICATION SURVEY RESPONSES MEANS DELTAS AND FREQUENCY DISTRIBUTIONS FOR ALL RESPONDENTS

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISH/CUR	475	7.7305263	1.7986794	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	475	7.9684211	1.6099154	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	475	8.3578947	1.4735057	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	475	8.4652632	1.3234153	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	475	8.2043150	1.3899739	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	475	8.0484211	1.4882708	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	475	8.2842105	1.4944564	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	474	7.6244726	1.0444569	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	475	7.6989474	1.9115192	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	475	8.5936842	1.3077028	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	474	8.0664579	1.4182841	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISH/REQ	475	8.8378947	1.5660601	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	475	9.1873684	1.1291349	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	475	9.1157895	1.2209766	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	475	9.2273684	1.0140825	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	475	9.1768421	1.0938505	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	475	9.0778947	1.0870526	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	475	9.3557895	0.9534211	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	474	8.8101266	1.3428311	0	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	475	8.6021053	1.6146729	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	475	9.2736842	0.9877104	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	475	9.0526316	1.1359899	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	474	1.1118143	1.9019706	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	474	1.2215190	1.7165855	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	474	0.7594937	1.5226148	-5.0000000	8.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	474	0.7637131	1.3866899	-5.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	474	0.9725798	1.5012682	-10.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	474	1.0316456	1.6142372	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	474	1.0738397	1.5830851	-4.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	473	1.1881607	1.8204661	-4.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	474	0.9050633	1.7918820	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	474	0.6814344	1.2242240	-4.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	473	0.9682875	1.4932931	-7.0000000	6.0000000

## DEVLP &amp; COMH COM VIS-CLR

Q34QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.2	1	0.2
1	1	0.2	2	0.4
2	2	0.4	4	0.8
3	8	1.7	12	2.5
4	23	4.8	35	7.4
5	14	2.9	49	10.3
6	47	9.9	96	20.2
7	81	17.1	177	37.3
8	136	28.6	313	65.9
9	76	16.0	389	81.9
10	86	18.1	475	100.0

Frequency Missing = 1

## DEVLP &amp; COMH COMD VISN/REQ

RJ4QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	2	0.4	2	0.4
1	1	0.2	3	0.6
2	1	0.2	4	0.8
3	3	0.6	7	1.5
4	4	0.8	11	2.3
5	7	1.5	18	3.8
6	15	3.2	33	6.9
7	33	6.9	66	13.9
8	90	18.9	156	32.8
9	96	20.2	252	53.1
10	223	46.9	475	100.0

Frequency Missing = 1

## DELTA-DEVLP &amp; COMH COMD VISN

Q34DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-8	1	0.2	1	0.2
-6	1	0.2	2	0.4
-5	1	0.2	3	0.6
-4	3	0.6	6	1.3
-3	5	1.1	11	2.3
-2	17	3.6	28	5.9
-1	18	3.8	46	9.7
0	158	33.3	204	43.0
1	90	19.0	294	62.0
2	93	19.6	387	81.6
3	42	8.9	429	90.5
4	20	4.2	449	94.7
5	12	2.5	461	97.3
6	8	1.7	469	98.9
7	5	1.1	474	100.0

Frequency Missing = 2



## MANAGING CONFLICT/CUR

C39QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	2	0.4	2	0.4
2	1	0.2	3	0.6
3	2	0.4	5	1.1
4	8	1.7	13	2.7
5	25	5.3	38	8.0
6	44	9.3	82	17.3
7	66	13.9	148	31.2
8	138	29.1	286	60.2
9	102	21.5	388	81.7
10	87	18.3	475	100.0

Frequency Missing = 1

## MANAGING CONFLICT/REQ

R39QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
4	3	0.6	3	0.6
5	3	0.6	6	1.3
6	9	1.9	15	3.2
7	22	4.6	37	7.8
8	71	14.9	108	22.7
9	109	22.9	217	45.7
10	258	54.3	475	100.0

Frequency Missing = 1

## DELTA-MANAGING CONFLICT

Q39DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-5	2	0.4	2	0.4
-4	2	0.4	4	0.8
-3	3	0.6	7	1.5
-2	14	3.0	21	4.4
-1	32	2.5	33	7.0
0	144	30.4	177	37.3
1	103	21.7	280	59.1
2	117	24.7	397	83.8
3	31	6.5	428	90.3
4	28	5.9	456	95.8
5	15	3.2	469	98.9
6	2	0.4	471	99.4
7	1	0.2	472	99.6
9	2	0.4	474	100.0

Frequency Missing = 2

DEVL SUBORDINATES-CUR

C44QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	0.2	1	0.2
4	6	1.3	7	1.5
5	17	3.6	24	5.1
6	29	6.1	53	11.2
7	61	12.9	114	24.0
8	127	26.7	241	50.7
9	99	20.9	340	71.6
10	135	28.4	475	100.0

Frequency Missing = 1

DEVL SUBORDINATES/REQ

R44QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2	1	0.2	1	0.2
4	2	0.4	3	0.6
5	4	0.8	7	1.5
6	10	2.1	17	3.6
7	29	6.1	46	9.7
8	84	17.7	130	27.4
9	85	17.9	215	45.3
10	260	54.7	475	100.0

Frequency Missing = 1

DELTA-DEVL SUBORDINATES

Q44DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-5	1	0.2	1	0.2
-4	3	0.6	4	0.8
-3	3	0.6	7	1.5
-2	22	4.6	29	6.1
-1	27	5.7	56	11.8
0	185	39.0	241	50.8
1	89	18.8	330	69.6
2	97	20.5	427	90.1
3	25	5.3	452	95.4
4	12	2.5	464	97.9
5	9	1.9	473	99.8
6	1	0.2	474	100.0

Frequency Missing = 2

# WRITING EFFECTIVELY/CUR

CS3QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	0.2	1	0.2
4	4	0.8	5	1.1
5	11	2.3	16	3.4
6	19	4.0	35	7.4
7	58	12.2	93	19.6
8	131	27.6	224	47.2
9	131	27.6	355	74.7
10	120	25.3	475	100.0

Frequency Missing = 1

# WRITING EFFECTIVELY/REQ

RS3QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
5	5	1.1	5	1.1
6	5	1.1	10	2.1
7	13	2.7	23	4.8
8	83	17.5	106	22.3
9	117	24.6	223	46.9
10	252	53.1	475	100.0

Frequency Missing = 1

# DELTA-WRITING EFFECTIVELY

q53DALTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-5	1	0.2	1	0.2
-4	1	0.2	2	0.4
-3	3	0.6	5	1.1
-2	12	2.5	17	3.6
-1	31	6.5	48	10.1
0	192	40.5	240	50.6
1	103	21.7	343	72.4
2	83	17.5	426	89.9
3	32	6.8	458	96.6
4	12	2.5	470	99.2
5	3	0.6	473	99.8
7	1	0.2	474	100.0

Frequency Missing = 2

## POS &amp; NEG FEEDBACK-CUR

CS4QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	0.2	1	0.2
4	6	1.3	7	1.5
5	17	3.6	24	5.1
6	24	5.1	48	10.1
7	73	15.4	121	25.5
8	152	32.0	273	57.5
9	105	22.1	378	79.6
10	97	20.4	475	100.0

Frequency Missing = 1

## POS &amp; NEG FEEDBACK/REQ

RS4QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.2	1	0.2
5	4	0.8	5	1.1
6	3	0.6	8	1.7
7	22	4.6	30	6.3
8	80	16.8	110	23.2
9	123	25.9	233	49.1
10	242	50.9	475	100.0

Frequency Missing = 1

## DELTA-POS &amp; NEG FEEDBACK

Q54DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-10	1	0.2	1	0.2
-5	1	0.2	2	0.4
-3	2	0.4	4	0.8
-2	8	1.7	12	2.5
-1	24	5.1	36	7.6
0	170	35.9	206	43.5
1	108	22.8	314	66.2
2	107	22.6	421	88.8
3	29	6.1	450	94.9
4	11	2.3	461	97.3
5	10	2.1	471	99.4
6	2	0.4	473	99.8
7	1	0.2	474	100.0

Frequency Missing = 2

## DELVR EFF ORAL PRES/CUR

Q55QTES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	3	0.6	3	0.6
4	7	1.5	10	2.1
5	19	4.0	29	6.1
6	38	8.0	67	14.1
7	86	18.1	153	32.2
8	122	25.7	275	57.9
9	115	24.2	390	82.1
10	85	17.8	475	100.0

Frequency Missing = 1

## DELVR EFF ORAL PRES/REQ

Q55QTES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
4	1	0.2	1	0.2
5	5	1.1	6	1.3
6	6	1.3	12	2.5
7	23	4.8	35	7.4
8	93	19.6	128	26.9
9	128	26.9	256	53.9
10	219	46.1	475	100.0

Frequency Missing = 1

## DELTA-DELVR EFF ORAL PRES

Q55DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-4	1	0.2	1	0.2
-3	3	0.6	4	0.8
-2	24	5.1	28	5.9
-1	22	4.6	50	10.5
0	143	30.2	193	40.7
1	114	24.1	307	64.8
2	87	20.5	404	85.2
3	37	7.8	441	93.0
4	21	4.4	462	97.5
5	6	1.3	468	98.7
6	3	0.6	471	99.4
7	3	0.6	474	100.0

Frequency Missing = 2

## LISTENING EFFECTIVELY-CLR

Q54Q25	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	0.2	1	0.2
3	3	0.6	4	0.8
4	3	0.6	7	1.5
5	17	3.6	24	5.1
6	30	6.3	54	11.4
7	61	12.8	115	24.2
9	144	30.3	259	54.5
9	91	19.2	350	73.7
10	125	26.3	475	100.0

Frequency Missing = 1

## LISTENING EFFECTIVELY/REQ

RS4Q55	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	0.2	1	0.2
5	1	0.2	2	0.4
6	4	0.8	6	1.3
7	14	2.9	20	4.2
8	64	13.5	84	17.7
9	108	22.7	192	40.4
10	263	59.6	475	100.0

Frequency Missing = 1

## DELTA-LISTENING EFFECTIVELY

Q56DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-4	1	0.2	1	0.2
-3	1	0.2	2	0.4
-2	15	3.2	17	3.6
-1	21	4.4	38	8.0
0	172	36.3	210	44.3
1	93	19.6	303	63.9
2	99	20.9	402	84.8
3	36	7.6	438	92.4
4	20	4.2	458	96.6
5	12	2.5	470	99.2
6	2	0.4	472	99.6
7	1	0.2	473	99.8
9	1	0.2	474	100.0

Frequency Missing = 2

BLD WORK & SUPRT RELTN/CUR

CS7QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	2	0.4	2	0.4
1	2	0.4	4	0.8
2	1	0.2	5	1.1
3	12	2.5	17	3.6
4	11	2.3	28	5.9
5	35	7.4	63	13.3
6	40	8.4	103	21.7
7	86	18.1	189	39.9
8	124	26.2	313	66.0
9	89	18.8	402	84.8
10	72	15.2	474	100.0

Frequency Missing = 2

BLD WORK & SUPRT RELTN/REQ

R57QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.2	1	0.2
2	1	0.2	2	0.4
3	2	0.4	4	0.8
4	1	0.2	5	1.1
5	7	1.5	12	2.5
6	11	2.3	23	4.9
7	36	7.6	59	12.4
8	106	22.4	165	34.8
9	127	26.8	292	61.6
10	182	38.4	474	100.0

Frequency Missing = 2

DELTA-BLD WORK & SUPRT RELTN

Q57DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-4	2	0.4	2	0.4
-3	8	1.7	10	2.1
-2	14	3.0	24	5.1
-1	20	4.2	44	9.3
0	160	33.8	204	43.1
1	78	16.5	282	59.6
2	94	19.9	376	79.5
3	51	10.8	427	90.3
4	24	5.1	451	95.3
5	11	2.3	462	97.7
6	7	1.5	469	99.2
7	3	0.6	472	99.8
9	1	0.2	473	100.0

Frequency Missing = 3

## REF ORGN TO EXTRL GRP/CUR

C58QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.2	1	0.2
1	2	0.4	3	0.6
2	2	0.4	5	1.1
3	13	2.7	18	3.8
4	18	3.8	36	7.6
5	30	6.3	66	13.9
6	35	7.4	101	21.3
7	75	15.8	176	37.1
8	126	26.5	302	63.6
9	83	17.5	385	81.1
10	90	18.9	475	100.0

Frequency Missing = 1

## REF ORGN TO EXTRL GRP/REQ

R58QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	0.5	3	0.5
3	4	0.8	7	1.5
4	9	1.9	16	3.4
5	7	1.5	23	4.8
6	18	3.8	41	8.6
7	36	7.6	77	16.2
8	110	23.2	187	39.4
9	117	24.6	304	64.0
10	171	36.0	475	100.0

Frequency Missing = 1

## DELTA-REF ORGN TO EXTRL GRP

Q58DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-6	1	0.2	1	0.2
-5	1	0.2	2	0.4
-4	3	0.6	5	1.1
-3	6	1.3	11	2.3
-2	19	3.8	29	6.1
-1	31	6.5	60	12.7
0	176	37.1	236	49.8
1	76	16.0	312	65.8
2	90	19.0	402	84.8
3	39	8.2	441	93.0
4	15	3.2	456	96.2
5	8	1.7	464	97.9
6	7	1.5	471	99.4
7	2	0.4	473	99.8
8	1	0.2	474	100.0

Frequency Missing = 2



## CLIMATE OF OPEN COMM/CUR

C59QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	0.2	1	0.2
4	1	0.2	2	0.4
5	9	1.9	11	2.3
6	25	5.3	36	7.6
7	48	10.1	84	17.7
8	121	25.5	265	43.2
9	124	26.1	389	69.3
10	146	30.7	475	100.0

Frequency Missing = 1

## CLIMATE OF OPEN COMM/REQ

R59QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
5	3	0.6	3	0.6
6	5	1.1	8	1.7
7	17	3.6	25	5.3
8	73	15.4	98	20.6
9	113	23.8	211	44.4
10	264	55.6	475	100.0

Frequency Missing = 1

## DELTA-CLIMATE OF OPEN COMM

Q59DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-4	1	0.2	1	0.2
-2	11	2.3	12	2.5
-1	26	5.5	38	8.0
0	225	47.5	263	55.5
1	97	20.5	360	75.9
2	80	16.9	440	92.8
3	22	4.6	462	97.5
4	8	1.7	470	99.2
5	4	0.8	474	100.0

Frequency Missing = 2

## CONDUCT MEETINGS EFF/CUR

Q60QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
4	7	1.5	7	1.5
5	17	3.6	24	5.1
6	39	8.2	63	13.3
7	60	12.9	123	26.2
8	141	29.7	264	55.9
9	102	21.5	366	81.4
10	88	18.6	454	100.0

Frequency Missing = 2

## CONDUCT MEETINGS EFF/REQ

Q60QUES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2	1	0.2	1	0.2
3	1	0.2	2	0.4
4	1	0.2	3	0.6
5	2	0.4	5	1.1
6	7	1.5	12	2.5
7	23	4.8	35	7.4
8	99	20.8	134	28.2
9	124	26.1	258	54.3
10	217	45.7	475	100.0

Frequency Missing = 1

## DELTA-CONDUCT MEETINGS EFF

Q60DELTA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-7	1	0.2	1	0.2
-4	1	0.2	2	0.4
-3	5	1.1	7	1.5
-2	6	1.3	13	2.7
-1	30	6.3	43	9.1
0	163	34.5	206	43.6
1	104	22.0	310	65.5
2	103	22.2	413	87.7
3	29	6.1	444	93.9
4	21	4.4	465	98.3
5	7	1.5	472	99.8
6	1	0.2	473	100.0

Frequency Missing = 3

# APPENDIX B

## COMMUNICATION SURVEY RESPONSES MEANS AND DELTAS BY CORPS

(Group-Non Designated)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISH/CUR	52	7.5769231	1.6609253	4.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	52	8.2115385	1.4994972	4.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	52	8.3269231	1.1535986	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	52	8.3269231	1.4241771	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	52	8.2500000	1.4934498	4.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	52	8.2692308	1.3879277	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	52	8.2307692	1.4088708	4.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	52	7.5961538	1.0285279	0	10.0000000
C58QUES	REP ORGN TO EXTRL GRP/CUR	52	7.7692308	1.9565414	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	52	6.6730769	2.1262487	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	52	8.2692308	1.3003074	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISH/REQ	52	8.4807692	1.8522947	1.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	52	9.2500000	1.1861125	6.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	52	8.9038462	1.4315714	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	52	9.0576923	1.2273591	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	52	9.0961538	1.1924536	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	52	8.9038462	1.3613663	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	52	9.2500000	1.0455320	6.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	52	8.4807692	1.6860487	3.0000000	10.0000000
R58QUES	REP ORGN TO EXTRL GRP/REQ	52	8.2692308	2.1972834	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	52	9.2884615	1.1604012	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	52	9.0000000	1.5965649	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	52	0.9038462	2.0868088	-5.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	52	1.0384615	1.6915191	-3.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	52	0.5769231	1.5383484	-5.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	52	0.7307692	1.6581987	-5.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	52	0.8461538	1.6731398	-5.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	52	0.6346154	1.6212903	-4.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	52	1.0192308	1.4209954	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	52	0.8846154	1.7894445	-4.0000000	5.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRL GRP	52	0.5000000	1.9453313	-5.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	52	0.6153846	1.2857263	-4.0000000	3.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	52	0.7307692	2.0109054	-7.0000000	5.0000000

## (Medical Corps (MC)-Group 1)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISH/CUR	153	7.4575163	1.9701287	2.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	153	7.7908497	1.6548597	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	153	8.1045752	1.6106692	1.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	153	8.4444444	1.3469697	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	153	7.9150327	1.5515176	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	153	7.9869381	1.4999427	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	153	8.1503268	1.6810525	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	152	7.4888421	1.9986424	3	10.0000000
C58QUES	REF ORGN TO EXTRNL GRP/CUR	153	7.5555556	2.0611982	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	153	8.4313725	1.3217050	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	153	7.9934641	1.4349800	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISH/REQ	154	8.7662338	1.5916129	2.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	154	9.1883117	1.0892792	5.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	154	9.0584416	1.2536848	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	154	9.1883117	1.0892792	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	154	9.1298701	1.2351142	C	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	154	9.0584416	1.0112893	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	154	9.2727273	1.0619548	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	153	8.8431373	1.4423922	C	10.0000000
R58QUES	REF ORGN TO EXTRNL GRP/REQ	154	8.6103896	1.6221977	C	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	154	9.2272727	1.0448925	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	154	9.0649351	1.1528613	3.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	153	1.3071895	2.0688194	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	153	1.3921569	1.7138572	-4.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	153	0.9477124	1.5466043	-3.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	153	0.7385621	1.3463950	-4.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	153	1.2091303	1.7831580	-10.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	153	1.0653595	1.5289883	-2.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	153	1.1176471	1.8243782	-4.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	152	1.3488842	1.9403689	-4.0000000	7.0000000
Q58DELTA	DELTA-REF ORGN TO EXTRNL GRP	153	1.0457516	1.8401225	-4.0000000	7.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	153	0.7908497	1.2174909	-1.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	153	1.0653595	1.4941694	-3.0000000	6.0000000

## (Dental Corps (DC)-Group 2)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISION/CUR	97	7.5979381	1.7833711	3.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	97	7.6907216	1.7100245	3.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	97	8.1752577	1.6202515	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	97	8.2886598	1.4430780	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	97	8.1340206	1.3040711	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	97	7.5773196	1.5931824	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	97	8.1958763	1.3278991	5.0000000	10.0000000
C57QUES	BLD WORK & SUPPT RELTN/CUR	97	7.3092784	1.8048593	2.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	97	7.0515464	2.0123118	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	97	8.4329897	1.4993555	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	97	7.5670103	1.5268924	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISION/REQ	97	8.5597938	1.2819792	5.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	97	8.8762887	1.3405357	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	97	9.0000000	1.1814539	6.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	97	9.1340206	1.1051854	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	97	9.1134021	1.0495663	6.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	97	8.9072165	1.1372708	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	97	9.3092784	0.9394239	6.0000000	10.0000000
R57QUES	BLD WORK & SUPPT RELTN/REQ	97	8.5670103	1.1806356	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	97	8.1752577	1.6138096	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	97	9.1340206	1.0065294	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	97	8.9072165	1.0112129	6.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISION	97	1.0618557	1.7725595	-2.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	97	1.1855670	1.9489842	-5.0000000	6.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	97	0.8247423	1.5812047	-3.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	97	0.8453608	1.5366373	-3.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	97	0.9793814	1.3842822	-2.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	97	1.3258969	1.7661260	-3.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	97	1.1134021	1.0459123	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPPT RELTN	97	1.2577320	1.6411273	-3.0000000	5.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	97	1.1237113	1.9698653	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	97	0.7010309	1.3003601	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	97	1.3402062	1.5538031	-2.0000000	5.0000000

## (Nurse Corps (NC)-Group 3)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISM/CUR	50	7.8600000	2.0702953	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	50	8.2400000	1.6038235	4.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	50	8.9400000	1.1677643	6.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	50	8.5000000	1.2330483	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	50	8.7400000	1.0843977	7.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	50	8.0200000	1.5049578	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	50	8.7600000	1.3180072	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	50	7.8800000	1.9654153	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	50	8.2000000	1.6035678	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	50	8.9200000	1.1752551	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	50	8.5600000	1.2480188	6.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISM/REQ	50	9.3200000	2.0347993	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	50	9.7400000	0.5646021	8.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	50	9.5400000	1.1642638	5.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	50	9.6000000	0.6388766	9.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	50	9.6200000	0.7795865	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	50	9.4600000	1.0343094	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	50	9.8400000	0.4677344	8.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	50	9.5400000	0.8134080	7.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	50	9.2800000	1.2295477	5.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	50	9.7600000	0.5910903	8.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	50	9.5000000	1.0151907	5.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISM	50	1.4600000	1.9713250	-6.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	50	1.5000000	1.4742691	0	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	50	0.6000000	1.5118579	-4.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	50	1.1000000	1.2657175	-1.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	50	0.8800000	1.1364104	-1.0000000	3.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	50	1.4400000	1.5670068	-2.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	50	1.0800000	1.3223356	0	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	50	1.6600000	1.9336969	0	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	50	1.0800000	1.6142225	-2.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	50	0.8400000	1.0758955	-1.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	50	0.9400000	1.0956314	-1.0000000	4.0000000

## (Medical Service Corps/Health Care Administration (MSC/HCA) -Group 4)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISION/CUR	93	8.3010753	1.2578877	6.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	93	8.2365591	1.4400925	4.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	93	8.6236559	1.2328297	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	93	8.7526882	1.0999596	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	93	8.3870968	1.2071549	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	93	8.4408602	1.3060259	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	93	8.3440860	1.5071902	3.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	93	7.9139785	1.5226972	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	93	8.2150538	1.5240782	3.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	93	8.7741939	1.1527758	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	92	8.3152174	1.2918115	5.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISION/REQ	93	9.0645161	1.4280304	3.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	93	9.1720430	1.1384931	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	93	9.2473118	1.1388010	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	93	9.3763441	0.7359404	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	93	9.1612903	0.9474258	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	93	9.2258065	0.9794523	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	93	9.3870968	0.8474034	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	93	8.7956989	1.2296972	4.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	93	8.8817204	1.2234081	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	93	9.2688172	0.8614924	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	93	9.0322581	0.9606566	6.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISION	93	0.7634409	1.5561788	-4.0000000	4.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	93	0.9354839	1.6405623	-4.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	93	0.6236559	1.4439829	-4.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	93	0.6236559	1.1412615	-2.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	93	0.7741935	1.2347243	-3.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	93	0.7849462	1.5169296	-2.0000000	6.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	93	1.0430108	1.6610236	-2.0000000	6.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	93	0.8817204	1.6930129	-3.0000000	6.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	93	0.6666667	1.6038902	-3.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	93	0.4946237	1.1852688	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	92	0.7173913	1.2866695	-3.0000000	4.0000000

## (Medical Service Corps/Allied Health (MSC/AH)-Group 5)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISION/CUR	30	8.0233333	1.3308886	1.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	30	8.0666667	1.4840144	3.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	30	8.5000000	1.2525835	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	30	8.4333333	1.3565507	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	30	8.4000000	1.3025175	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	30	8.3333333	1.3978637	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	30	8.3666667	1.2994252	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	30	8.0666667	1.7798360	1.0000000	10.0000000
C58QUES	REP ORDN TO EXTRNL GRP/CUR	30	7.9666667	1.6501480	5.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	30	8.7000000	1.2905492	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	30	8.4333333	1.3308886	6.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISION/REQ	29	8.8965517	0.9390279	7.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	29	9.2068966	0.8185052	8.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	29	9.0344828	0.9813532	7.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	29	8.9310345	0.9975339	7.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	29	9.0689655	1.0667385	6.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	29	8.9310345	1.0327161	6.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	29	9.2068966	0.9775812	6.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	29	8.8275862	1.3111872	6.0000000	10.0000000
R58QUES	REP ORDN TO EXTRNL GRP/REQ	29	8.5172414	1.5950972	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	29	9.1379310	1.0255360	8.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	29	8.8620690	1.0597890	6.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISION	29	1.1379310	1.8655550	-2.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	29	1.2068966	1.5207919	-2.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	29	0.5852059	1.4272161	-2.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	29	0.5517241	1.4537195	-2.0000000	3.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	29	0.7241379	1.3328906	-2.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	29	0.6581724	1.6534782	-3.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	29	0.8965517	1.3975700	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	29	0.8275862	1.8335945	-1.0000000	9.0000000
Q58DELTA	DELTA-REP ORDN TO EXTRNL GRP	29	0.6204897	1.3205462	-2.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	29	0.4627586	1.2427127	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	29	0.4827586	1.1218627	-2.0000000	3.0000000



ANALYSIS OF VARIANCE PROCEDURE BY THE VARIABLE-CORPS

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
GROUP	5	1 2 3 4 5

Number of observations in data set = 476

Group	Obs	Dependent Variables
1	422	Q34DELTA Q39DELTA Q44DELTA Q53DELTA Q54DELTA Q55DELTA Q56DELTA Q58DELTA Q59DELTA
2	421	Q57DELTA
3	421	Q60DELTA

NOTE: Variables in each group are consistent with respect  
to the presence or absence of missing values.

# Analysis of Variance Procedure

Dependent Variable: Q55DELTA DELTA-DELTA RFF ORAL PRES						
Source	DF	SUM of Squares	Mean Square	F Value	Pr > F	
Model	4	25.90031044	6.47507761	2.54	0.0394	
Error	417	1063.36035307	2.55002483			
Corrected Total	421	1089.26066351				
		R-Square	C.V.	Root MSE	Q55DELTA Mean	
		0.023778	147.7814	1.5968797	1.0805687	
Source	DF	Anova SS	Mean Square	F Value	Pr > F	
GROUP	4	25.90031044	6.47507761	2.54	0.0394	

Tukey's Studentized Range (HSD) Test for variable: Q55DELTA  
NOTE: This test controls the type I experimentwise error rate

Alpha= 0.05 Confidence= 0.95 df= 417 MSE= 2.550025  
Critical Value of Studentized Range= 3.875

Comparisons significant at the 0.05 level are indicated by \*\*\*.

GROUP Comparison		Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
3	= 2	-0.6516	0.1101	0.8718
3	= 1	-0.3381	0.3746	1.0873
3	= 4	-0.1122	0.6551	1.4223
3	= 5	-0.2364	0.7848	1.8060
2	= 3	-0.8718	-0.1101	0.6516
2	= 1	-0.3033	0.2645	0.8324
2	= 4	-0.0900	0.5450	1.1799
2	= 5	-0.2512	0.6747	1.6007
1	= 3	-1.0873	-0.3746	0.3381
1	= 2	-0.8324	-0.2645	0.3033
1	= 4	-0.2948	0.2804	0.8557
1	= 5	-0.4759	0.4102	1.2963
4	= 3	-1.4223	-0.6551	0.1122
4	= 2	-1.1799	-0.5450	0.0900
4	= 1	-0.8557	-0.2804	0.2948
4	= 5	-0.8007	0.1298	1.0603
5	= 3	-1.8060	-0.7848	0.2364
5	= 2	-1.6007	-0.6747	0.2512
5	= 1	-1.2963	-0.4102	0.4759
5	= 4	-1.0603	-0.1298	0.8007

# Analysis of Variance Procedure

Dependent Variable: Q60DELTA		DELTA-CONDUCT HERTINGS EFF			
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	27.16447037	6.79111759	3.46	0.0085
Error	416	815.83315433	1.96113739		
Corrected Total	420	842.99762470			
		R-Square	C.V.	Root MSE	Q60DELTA Mean
		0.032224	140.3740	1.4004062	0.9976247
Source	DF	Anova SS	Mean Square	F Value	Pr > F
GROUP	4	27.16447037	6.79111759	3.46	0.0085

Tukey's Studentized Range (HSD) Test for variable: Q60DELTA

NOTE: This test controls the type I experimentwise error rate.  
Alpha= 0.05 Confidence= 0.95 df= 416 MSE= 1.961137  
Critical Value of Studentized Range= 3.875

Comparisons significant at the 0.05 level are indicated by '\*\*\*'.

GROUP Comparison		Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
2	- 1	-0.2231	0.2748	0.7728	
2	- 3	-0.2678	0.4002	1.0682	
2	- 4	0.0644	0.6228	1.1812	***
2	- 5	0.0454	0.8574	1.6695	***
1	- 2	-0.7728	-0.2748	0.2231	
1	- 3	-0.4997	0.1254	0.7504	
1	- 4	-0.1582	0.3480	0.8542	
1	- 5	-0.1945	0.5826	1.3597	
3	- 2	-1.0682	-0.4002	0.2678	
3	- 1	-0.7504	-0.1254	0.4997	
3	- 4	-0.4515	0.2226	0.8967	
3	- 5	-0.4383	0.4572	1.3528	
4	- 2	-1.1812	-0.6228	-0.0644	***
4	- 1	-0.8542	-0.3480	0.1582	
4	- 3	-0.8967	-0.2226	0.4515	
4	- 5	-0.5825	0.2346	1.0517	
5	- 2	-1.6695	-0.8574	-0.0454	***
5	- 1	-1.3597	-0.5826	0.1945	
5	- 3	-1.3528	-0.4572	0.4383	
5	- 4	-1.0517	-0.2346	0.5825	

# APPENDIX C

## COMMUNICATION SURVEY RESPONSES MEANS AND DELTAS BY DEMOGRAPHIC VARIABLES

(Grade-Non Designated)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVLV & COMM COND VISH/CUR	3	8.3333333	0.5773503	8.0000000	9.0000000
C39QUES	MANAGING CONFLICT/CUR	3	7.3333333	2.0816660	5.0000000	9.0000000
C44QUES	DEVLV SUBORDINATES/CUR	3	9.3333333	0.5773503	9.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	3	7.3333333	1.5275252	6.0000000	9.0000000
C54QUES	POS & NEG FEEDBACK/CUR	3	7.3333333	1.1547005	6.0000000	9.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	3	8.0000000	1.0000000	7.0000000	9.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	3	8.0000000	0	9.0000000	9.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	3	8.0000000	1.0000000	7.0000000	9.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	3	7.6666667	1.5275252	6.0000000	9.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	3	7.3333333	0.5773503	7.0000000	8.0000000
C63QUES	CONDUCT MEETINGS EFF/CUR	3	8.6666667	0.5773503	8.0000000	9.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVLV & COMM COND VISH/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000
R44QUES	DEVLV SUBORDINATES/REQ	3	10.0000000	0	10.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	3	9.0000000	1.0000000	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	3	9.0000000	1.0000000	8.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	3	8.6666667	2.3094011	6.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	3	10.0000000	0	10.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000
R63QUES	CONDUCT MEETINGS EFF/REQ	3	9.3333333	1.1547005	8.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVLV & COMM COND VISH	3	1.0000000	1.0000000	0	2.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	3	2.0000000	1.0000000	1.0000000	3.0000000
Q44DELTA	DELTA-DEVLV SUBORDINATES	3	0.6666667	0.5773503	0	1.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	3	1.6666667	2.3094011	-1.0000000	3.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	3	1.6666667	1.5275252	0	3.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	3	0.6666667	1.5275252	-1.0000000	2.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	3	1.3333333	1.1547005	0	2.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	3	2.0000000	1.0000000	1.0000000	3.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	3	1.6666667	0.5773503	1.0000000	2.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	3	2.0000000	1.0000000	1.0000000	3.0000000
Q63DELTA	DELTA-CONDUCT MEETINGS EFF	3	0.6666667	1.5275252	-1.0000000	2.0000000

## (Admiral-Grade 1)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISH/CUR	10	9.2000000	1.0327956	8.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	10	8.8000000	1.0327956	7.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	10	9.4000000	0.8432740	8.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	10	8.8000000	1.0327956	7.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	10	8.7000000	0.8232726	8.0000000	10.0000000
C55QUES	DEVL EFF ORAL PRES/CUR	10	8.8000000	0.9189366	7.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	10	9.1000000	0.9944289	8.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	10	8.9000000	1.1005049	7.0000000	10.0000000
C58QUES	REF ORGN TO EXTRNL GRP/CUR	10	9.3000000	1.0593499	7.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	10	9.3000000	0.8232726	8.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	10	8.9000000	0.8755950	8.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISH/REQ	10	9.7000000	0.6749486	8.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	10	9.6000000	0.6992059	8.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	10	9.6000000	0.6992059	8.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	10	9.7000000	0.4830459	9.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	10	9.7000000	0.4830459	9.0000000	10.0000000
R55QUES	DEVL EFF ORAL PRES/REQ	10	9.7000000	0.4830459	9.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	10	9.9000000	0.3162278	9.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	10	9.8000000	0.4216370	9.0000000	10.0000000
R58QUES	REF ORGN TO EXTRNL GRP/REQ	10	9.8000000	0.4216370	9.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	10	9.8000000	0.4216370	9.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	10	9.7000000	0.4830459	9.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	10	0.5000000	1.2692955	-2.0000000	2.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	10	0.8000000	1.2292726	-2.0000000	2.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	10	0.2000000	1.0327956	-2.0000000	2.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	10	0.9000000	0.9944289	0	3.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	10	1.0000000	0.8164966	0	2.0000000
Q55DELTA	DELTA-DEVL EFF ORAL PRES	10	0.9000000	0.9944289	0	3.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	10	0.8000000	1.1352924	-1.0000000	2.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	10	0.9000000	0.9944289	0	3.0000000
Q58DELTA	DELTA-REF ORGN TO EXTRNL GRP	10	0.5000000	0.7091068	0	2.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	10	0.5000000	0.8498366	0	2.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	10	0.8000000	0.9189366	0	2.0000000

## (Captain-Grade 2)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	311	7.8691672	1.7242061	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	311	8.0032154	1.5993918	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	311	8.4276527	1.4436984	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	311	8.5305466	1.2718539	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	311	8.2443730	1.3765638	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	311	8.0675241	1.4586582	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	311	8.3311897	1.4711061	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	310	7.7516129	1.7477440	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	311	7.6916720	1.9087959	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	311	8.5980707	1.2835923	4.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	311	8.0803959	1.4289522	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	312	8.8108974	1.5895994	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	312	9.1634615	1.1630200	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	312	9.0897436	1.2571176	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	312	9.2051282	1.0376696	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	312	9.1859974	1.1470891	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	312	9.0512821	1.1300905	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	312	9.3429487	0.9659210	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	311	8.8392283	1.2648619	0	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	312	8.5641026	1.6382859	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	312	9.2884615	0.9723483	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	312	9.0833333	1.0993031	3.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	311	0.9421222	1.7588103	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	311	1.1575563	1.7627688	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	311	0.6591640	1.5344132	-5.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	311	0.6720257	1.3057523	-5.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	311	0.9388068	1.5448554	-10.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	311	0.9807074	1.6262804	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	311	1.0096463	1.5912777	-4.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	310	1.0838710	1.7064691	-4.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	311	0.8778135	1.7591759	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	311	0.6881029	1.2401170	-4.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	311	1.0000000	1.4300914	-4.0000000	5.0000000

## (Commander-Grade 3)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34QUES	DEVL P & COMM COND VISM/CUR	96	7.3229167	1.5834168	1.0000000	10.0000000
Q39QUES	MANAGING CONFLICT/CUR	96	7.7500000	1.7229106	2.0000000	10.0000000
Q44QUES	DEVL P SUBORDINATES/CUR	96	8.1145833	1.6017740	3.0000000	10.0000000
Q53QUES	WRITING EFFECTIVELY/CUR	96	8.3645833	1.2741957	5.0000000	10.0000000
Q54QUES	POS & NEG FEEDBACK/CUR	96	8.1458333	1.4590388	4.0000000	10.0000000
Q55QUES	DELVR EFF ORAL PRES/CUR	96	7.8437500	1.6243420	4.0000000	10.0000000
Q56QUES	LISTENING EFFECTIVELY/CUR	96	8.0625000	1.5681870	3.0000000	10.0000000
Q57QUES	BLD WORK & SUPRT RELTN/CUR	96	7.9583333	1.8265825	1.0000000	10.0000000
Q58QUES	REP ORGN TO EXTRNL GRP/CUR	96	7.7916667	1.7646623	1.0000000	10.0000000
Q59QUES	CLIMATE OF OPEN COMM/CUR	96	8.6145833	1.3944989	3.0000000	10.0000000
Q60QUES	CONDUCT MEETINGS EFF/CUR	96	8.1458333	1.4065947	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COND VISM/REQ	96	8.9270833	1.5440534	1.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	96	9.2500000	1.0662290	6.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	96	9.2083333	1.2218766	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	96	9.2083333	1.0752397	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	96	9.2083333	1.0251230	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	96	9.1145833	0.9933441	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	96	9.4375000	0.8683014	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	96	8.7708333	1.3493013	3.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	96	8.7500000	1.3298199	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	96	9.2916667	1.0148027	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	96	9.0000000	1.2565617	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISM	96	1.6041667	2.1739083	-5.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	96	1.5000000	1.7411430	-3.0000000	7.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	96	1.0937500	1.4873369	-2.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	96	0.8437500	1.4240648	-3.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	96	1.0625000	1.5547042	-3.0000000	6.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	96	1.2708333	1.6925993	-2.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	96	1.3750000	1.6367490	-2.0000000	7.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	96	1.3750000	1.8764468	-3.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	96	0.9583333	1.9353589	-4.0000000	7.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	96	0.6770833	1.1470309	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	96	0.8541667	1.6668860	-7.0000000	6.0000000

## (Lieutenant Commander-Grade 4)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COMD VISM/CUR	44	7.4545455	1.9223840	2.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	44	8.2954545	1.4399539	4.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	44	8.2500000	1.4487364	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	44	8.4090909	1.5449570	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	44	8.2045455	1.3043674	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	44	8.3409091	1.3799761	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	44	8.3863636	1.4975314	3.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	44	7.1363636	2.2884026	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	44	7.3409091	2.3121039	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	44	8.5454545	1.3946568	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	43	7.9534884	1.4301763	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COMD VISM/REQ	43	8.7674419	1.6159504	3.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	43	9.3488372	0.9972276	7.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	43	9.1162791	1.0512072	7.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	43	9.3953488	0.8205554	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	43	9.0930233	0.9465213	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	43	9.2325581	0.8954171	7.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	43	9.3023256	0.8873418	8.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	43	8.5116279	1.8564186	2.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	43	8.4186047	2.0613514	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	43	9.1860465	0.9821215	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	43	8.9767442	1.1849929	5.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COMD VISM	43	1.3720930	2.0589324	-4.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	43	1.0930233	1.3595159	-2.0000000	5.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	43	0.9069767	1.5246226	-2.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	43	1.0232558	1.6545510	-2.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	43	0.9302326	1.2610530	-2.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	43	0.9302326	1.3521649	-2.0000000	4.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	43	0.9534884	1.3793285	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	43	1.4418605	2.2071564	-4.0000000	6.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	43	1.1395349	1.7536546	-4.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	43	0.6744186	1.1280183	-2.0000000	3.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	42	1.0714286	1.5364333	-3.0000000	5.0000000



## (Other-Grade 5)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	11	7.0000000	2.2803509	1.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	11	7.0000000	1.3418408	5.0000000	9.0000000
C44QUES	DEVL SUBORDINATES/CUR	11	7.7272727	1.2720778	6.0000000	9.0000000
C53QUES	WRITING EFFECTIVELY/CUR	11	7.7272727	2.1019471	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	11	7.4545455	1.8090681	5.0000000	9.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	11	7.4545455	1.7529196	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	11	7.0181818	1.8340219	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT BELTH/CUR	11	6.7272727	2.534131	1.0000000	10.0000000
C58QUES	REP ORGM TO EXTRNL GRP/CUR	11	7.3636364	1.6895400	5.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	11	8.1818182	1.3280197	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	11	7.3636364	1.5015144	5.0000000	9.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	11	8.1818182	1.4012981	5.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	11	8.2727273	1.1908744	6.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	11	8.3636364	1.0269108	7.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	11	9.0000000	0.7745967	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	11	8.5454545	0.9341987	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	11	8.5454545	1.1281521	7.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	11	8.2727273	1.1037127	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT BELTH/REQ	11	8.2727273	1.2720778	6.0000000	10.0000000
R58QUES	REP ORGM TO EXTRNL GRP/REQ	11	8.1818182	1.5374122	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	11	8.5454545	1.2933396	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	11	8.2727273	1.0090500	7.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	11	1.1818182	2.6388703	-2.0000000	5.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	11	1.2727273	1.9021519	-1.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	11	0.6363636	1.7477258	-2.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	11	1.2727273	2.0538213	-1.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	11	1.0909091	2.1191765	-1.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	11	1.0000000	2.1447611	-2.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	11	0.9090909	2.2115400	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT BELTH	11	1.5454545	3.7373560	-2.0000000	9.0000000
Q58DELTA	DELTA-REP ORGM TO EXTRNL GRP	11	0.4545455	2.4642804	-3.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	11	0.3636364	1.9632896	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	11	0.9090909	2.0714510	-1.0000000	5.0000000

## (Gender-Non Designated)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COMD VSN/CUR	15	8.0666667	2.1865389	2.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	15	8.4666667	1.4074631	5.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	15	8.4666667	1.8073922	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	15	8.2000000	2.1111947	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	15	8.4000000	1.5491933	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	15	8.6666667	1.5430335	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	15	8.2666667	1.7511901	4.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	15	7.5333333	2.3563491	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL ORG/CUR	15	7.7333333	2.1536237	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	15	8.6666667	1.6329932	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	15	8.4000000	1.6818357	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COMD VSN/REQ	14	8.7142857	1.8985245	3.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	14	9.5000000	0.9405399	7.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	14	9.4285714	0.9376145	8.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	14	9.3571429	0.9287827	7.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	14	9.3571429	1.0818178	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	14	9.4285714	0.9376145	7.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	14	9.4285714	0.7449463	8.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	14	8.5714286	2.1737697	2.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL ORG/REQ	14	8.9285714	1.2066655	7.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	14	9.2857143	0.9138735	7.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	14	9.1428571	1.5116579	5.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COMD VSN	14	0.7857143	2.4235556	-4.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	14	1.1428571	1.3506205	0	5.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	14	1.0714286	1.7743595	-1.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	14	1.2857143	2.4629117	-2.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	14	1.0714286	1.5915298	-1.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	14	0.8571429	1.3506205	-1.0000000	4.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	14	1.5000000	1.6052798	0	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	14	1.2142857	2.0448273	-3.0000000	4.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL ORG	14	1.3571429	1.2774459	0	3.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	14	0.7142857	1.5898027	-1.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	14	0.8571429	2.1070264	-3.0000000	5.0000000

## (Male-Gender 0)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISION/CUR	395	7.7316456	1.8119418	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	395	7.9518987	1.6325419	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	395	8.3113924	1.5001681	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	395	8.4936709	1.2949866	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	395	8.1569620	1.4144543	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	395	8.0379747	1.4829234	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	395	8.2354430	1.5038899	1.0000000	10.0000000
C57QUES	BD WORK & SUPRT RELTN/CUR	394	7.6243655	1.8426707	0	10.0000000
C58QUES	REP ORGN TO EXTRL GRP/CUR	395	7.6582278	1.9413694	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	395	8.5924051	1.2936561	4.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	395	8.0379747	1.4277351	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISION/REQ	396	8.7803030	1.5409075	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	396	9.1161616	1.1720982	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	396	9.0707071	1.2263151	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	396	9.1893939	1.0491654	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	396	9.1237374	1.1238911	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	396	9.0278788	1.0982516	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	396	9.3055556	0.9834424	3.0000000	10.0000000
R57QUES	BD WORK & SUPRT RELTN/REQ	396	8.7443038	1.3491628	0	10.0000000
R58QUES	REP ORGN TO EXTRL GRP/REQ	396	8.5303030	1.6586073	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	396	9.2373737	1.0023953	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	396	9.0075758	1.1373712	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISION	395	1.0481013	1.8796844	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	395	1.1620293	1.7666039	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	395	0.7369620	1.8119392	-5.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	395	0.6936709	1.3347505	-5.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	395	0.9645570	1.5686521	-10.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	395	0.9974684	1.6379056	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	395	1.0683544	1.6067390	-4.0000000	9.0000000
Q57DELTA	DELTA-BD WORK & SUPRT RELTN	394	1.1167513	1.8037489	-4.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRL GRP	395	0.8683544	1.8257835	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	395	0.6430380	1.2264723	-4.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	395	0.9670886	1.5168865	-7.0000000	6.0000000

## (Female-Gender 1)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COMD VISM/CUR	65	7.6461538	1.6339252	3.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	65	7.9538462	1.5148305	4.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	65	8.6153846	1.1949413	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	65	8.3538462	1.2800240	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	65	8.4615385	1.1736285	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	65	7.9692308	1.4996795	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	65	8.5846154	1.3566070	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	65	7.6461538	1.7538419	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	65	7.9384615	1.6665545	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	65	8.5846154	1.3337754	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	64	8.3125000	1.2047929	6.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COMD VISM/REQ	65	9.2153846	1.6152816	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	65	9.5538462	0.7711754	7.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	65	9.3230769	1.2261180	5.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	65	9.4307692	0.7699276	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	65	9.4615385	0.8492078	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	65	9.2461538	1.0312427	6.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	65	9.6000000	0.7456217	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	65	9.2615385	0.9565061	7.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	65	8.9692308	1.3574934	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	65	9.4923077	0.8860565	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	65	9.3076923	1.0143205	5.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COMD VISM	65	1.5692308	1.8789062	-6.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	65	1.6000000	1.4230249	-1.0000000	5.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	65	0.7076923	1.5484173	-4.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	65	1.0769231	1.3498575	-1.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	65	1.0000000	1.1989579	-1.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	65	1.2769231	1.5156238	-2.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	65	1.0153846	1.4842118	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	65	1.6153846	1.8429961	-2.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	65	1.0307692	1.6485716	-2.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	65	0.9076923	1.1141571	-1.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	64	1.0000000	1.1818737	-1.0000000	4.0000000

## (Education-Non Designated)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUS	DEVL P & COMM COND VISH/CUR	5	9.0000000	1.0000000	8.0000000	10.0000000
C39QUS	MANAGING CONFLICT/CUR	5	8.6000000	0.8944272	8.0000000	10.0000000
C44QUS	DEVL P SUBORDINATES/CUR	5	9.0000000	1.0000000	8.0000000	10.0000000
C53QUS	WRITING EFFECTIVELY/CUR	5	7.2000000	0.8366600	6.0000000	8.0000000
C54QUS	POS & NEG FEEDBACK/CUR	5	7.4000000	0.8944272	6.0000000	8.0000000
C55QUS	DELVR EFF ORAL PRES/CUR	5	7.8000000	0.8366600	7.0000000	9.0000000
C56QUS	LISTENING EFFECTIVELY/CUR	5	8.3000000	1.4142136	6.0000000	10.0000000
C57QUS	BLD WORK & SUPRT RELTN/CUR	5	8.0000000	1.5813888	6.0000000	10.0000000
C58QUS	REP ORGN TO EXTRNL GRP/CUR	5	8.2000000	1.4832397	6.0000000	10.0000000
C59QUS	CLIMATE OF OPEN COMM/CUR	5	8.4000000	1.1401754	7.0000000	10.0000000
C60QUS	CONDUCT MEETINGS EFF/CUR	5	8.8000000	0.8366600	8.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUS	DEVL P & COMM COND VISH/REQ	5	9.2000000	1.0354451	8.0000000	10.0000000
R39QUS	MANAGING CONFLICT/REQ	5	9.4000000	0.8944272	8.0000000	10.0000000
R44QUS	DEVL P SUBORDINATES/REQ	5	9.4000000	0.8944272	8.0000000	10.0000000
R53QUS	WRITING EFFECTIVELY/REQ	5	9.6000000	0.5477226	9.0000000	10.0000000
R54QUS	POS & NEG FEEDBACK/REQ	5	9.6000000	0.5477226	9.0000000	10.0000000
R55QUS	DELVR EFF ORAL PRES/REQ	5	9.8000000	0.4472136	9.0000000	10.0000000
R56QUS	LISTENING EFFECTIVELY/REQ	5	10.0000000	0	10.0000000	10.0000000
R57QUS	BLD WORK & SUPRT RELTN/REQ	5	9.6000000	0.5477226	9.0000000	10.0000000
R58QUS	REP ORGN TO EXTRNL GRP/REQ	5	9.6000000	0.5477226	9.0000000	10.0000000
R59QUS	CLIMATE OF OPEN COMM/REQ	5	9.8000000	0.4472136	9.0000000	10.0000000
R60QUS	CONDUCT MEETINGS EFF/REQ	5	9.8000000	0.4472136	9.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	5	0.2000000	0.4472136	0	1.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	5	0.8000000	0.8366600	0	2.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	5	0.4000000	0.5477226	0	1.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	5	2.4000000	0.8944272	1.0000000	3.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	5	2.2000000	0.4472136	2.0000000	3.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	5	2.0000000	0.7071068	1.0000000	3.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	5	2.0000000	1.4142136	0	4.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	5	1.6000000	1.3416408	0	3.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	5	1.4000000	1.1401754	0	3.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	5	1.4000000	1.3416408	0	3.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	5	1.0000000	1.0000000	0	2.0000000

## (Bachelor Science-Education 1)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	283	7.5300353	1.8359054	2.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	283	7.7667845	1.6680219	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	283	8.1272085	1.5860881	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	283	8.4028269	1.3658416	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	283	8.0141343	1.4537107	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	283	7.8692580	1.5277139	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	283	8.1484099	1.5594220	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	282	7.4468085	1.8779220	0	10.0000000
C58QUES	REF ORGN TO EXTRNL GRP/CUR	283	7.3886926	2.0099432	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	283	8.4452297	1.3836700	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	283	7.8798587	1.4778689	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	284	8.7112676	1.4852918	2.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	284	9.0563380	1.2111067	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	284	9.0070423	1.2553573	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	284	9.1373239	1.1019487	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	284	9.1021127	1.1948635	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	284	8.9683099	1.1227094	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	284	9.2640845	1.0350631	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	283	8.7137809	1.3524554	0	10.0000000
R58QUES	REF ORGN TO EXTRNL GRP/REQ	284	8.4119718	1.6524950	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	284	9.2007042	1.0482465	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	284	9.0105634	1.0976498	3.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	283	1.1802120	1.5367747	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	283	1.2862191	1.8275048	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	283	0.8763251	1.6074642	-5.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	283	0.7314488	1.4385647	-5.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	283	1.0848057	1.6800505	-10.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	283	1.0954064	1.6635688	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	283	1.1130742	1.6951972	-4.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	282	1.2624113	1.8178451	-4.0000000	7.0000000
Q58DELTA	DELTA-REF ORGN TO EXTRNL GRP	283	1.0176678	1.8783119	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	283	0.7526502	1.2697874	-4.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	283	1.1272085	1.5081581	-3.0000000	6.0000000

## (Master Science-Education 2)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QURS	DEVL P & COMM COND VISH/CUR	164	8.0548780	1.7097808	0	10.0000000
C39QURS	MANAGING CONFLICT/CUR	164	8.2482927	1.4824021	4.0000000	10.0000000
C44QURS	DEVL P SUBORDINATES/CUR	164	8.6829268	1.2222683	5.0000000	10.0000000
C53QURS	WRITING EFFECTIVELY/CUR	164	8.6402439	1.1872905	5.0000000	10.0000000
C54QURS	POS & NEG FEEDBACK/CUR	164	8.5487805	1.2203014	5.0000000	10.0000000
C55QURS	DELVR EFF ORAL PRES/CUR	164	8.3292683	1.4059896	4.0000000	10.0000000
C56QURS	LISTENING EFFECTIVELY/CUR	164	8.5548780	1.3757454	3.0000000	10.0000000
C57QURS	BLD WORK & SUPRT RELTN/CUR	164	7.9024390	1.7415568	C	10.0000000
C58QURS	REP ORGN TO EXTRNL GRP/CUR	164	8.1402439	1.6537288	C	10.0000000
C59QURS	CLIMATE OF OPEN COMM/CUR	164	8.8475610	1.1485900	6.0000000	10.0000000
C60QURS	CONDUCT MEETINGS EFF/CUR	163	8.4233129	1.2614694	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QURS	DEVL P & COMM COND VISH/REQ	163	9.0858896	1.7119723	0	10.0000000
R39QURS	MANAGING CONFLICT/REQ	163	9.4294479	0.9227530	6.0000000	10.0000000
R44QURS	DEVL P SUBORDINATES/REQ	163	9.3496933	1.1029352	4.0000000	10.0000000
R53QURS	WRITING EFFECTIVELY/REQ	163	9.3803681	0.8763602	5.0000000	10.0000000
R54QURS	POS & NEG FEEDBACK/REQ	163	9.3190184	0.9005549	5.0000000	10.0000000
R55QURS	DELVR EFF ORAL PRES/REQ	163	9.2699387	1.0307695	4.0000000	10.0000000
R56QURS	LISTENING EFFECTIVELY/REQ	163	9.5337423	0.7559003	7.0000000	10.0000000
R57QURS	BLD WORK & SUPRT RELTN/REQ	163	8.5693252	1.3213504	3.0000000	10.0000000
R58QURS	REP ORGN TO EXTRNL GRP/REQ	163	8.9079755	1.5267565	0	10.0000000
R59QURS	CLIMATE OF OPEN COMM/REQ	163	9.4171779	0.8806279	6.0000000	10.0000000
R60QURS	CONDUCT MEETINGS EFF/REQ	163	9.1333742	1.1997058	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	163	1.0429448	1.8302995	-6.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	163	1.1717791	1.5014195	-3.0000000	5.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	163	0.6748466	1.3511924	-4.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	163	0.7484663	1.2389938	-3.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	163	0.7791411	1.1812586	-3.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	163	0.9509202	1.5236831	-3.0000000	6.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	163	0.9877301	1.3877228	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	163	1.0797546	1.7532390	-4.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	163	0.7791411	1.6778313	-5.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	163	0.5766871	1.1215934	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	162	0.7407407	1.4513029	-7.0000000	4.0000000

## (Doctorate-Education 3)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COND VISH/CUR	23	7.6086957	1.7251912	4.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	23	8.1739130	1.5565747	5.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	23	8.7391304	1.2510865	6.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	23	8.2608695	1.6016296	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	23	8.3043478	1.3629174	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	23	8.3043478	1.3959286	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	23	8.0869565	1.3112466	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTH/CUR	23	7.7391304	2.0936569	1.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	23	8.2608696	1.7892962	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	23	8.6521739	1.2287123	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	23	8.0869565	1.3788319	5.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COND VISH/REQ	23	8.5652174	1.3759653	5.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	23	9.0434783	1.2239378	6.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	23	8.7391304	1.4211836	6.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	23	9.1739130	0.7168221	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	23	9.0000000	1.0444659	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	23	8.9130435	0.9001537	7.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	23	9.0869565	1.0406748	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTH/REQ	23	8.6956522	1.3959286	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	23	8.5652174	1.5616480	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	23	9.0434783	0.8779242	7.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	23	8.6956522	1.1455361	7.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	23	0.9565217	2.1632942	-2.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	23	0.8695652	1.8902705	-3.0000000	5.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	23	0	1.9374122	-2.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	23	0.9130435	1.6490505	-1.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	23	0.6956522	1.5502136	-1.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	23	0.6086957	1.6986393	-2.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	23	1.0000000	1.6236883	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTH	23	0.9565217	2.3832419	-2.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	23	0.3043478	1.4596009	-2.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	23	0.3913043	1.2699009	-1.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	23	0.6086957	1.4996706	-1.0000000	5.0000000



## (Commanding Officer-Post)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISION/CUR	97	8.2783505	1.5461125	3.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	97	7.9587629	1.8080594	2.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	97	8.4948454	1.4514627	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	97	8.5879381	1.3667159	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	97	8.2989691	1.4660388	4.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	97	8.0103093	1.5240765	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	97	8.2680412	1.5035753	4.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	97	7.9690722	1.4822112	4.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	97	8.1340206	1.5453483	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	97	8.8865979	1.2406004	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	97	8.1134021	1.5198430	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISION/REQ	97	9.2164940	1.1108058	5.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	97	9.1649485	1.0376296	6.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	97	9.2577320	1.0923822	6.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	97	9.1443299	1.0891445	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	97	9.2680412	1.0258692	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	97	9.1752577	1.0607614	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	97	9.4020619	0.9753183	6.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	97	8.9793814	1.0799246	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	97	8.9278351	1.2437127	3.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	97	9.3814433	0.9513510	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	97	9.1237113	0.9816836	6.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISION	97	0.9381443	1.3602576	-2.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	97	1.2061856	1.5474316	-2.0000000	7.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	97	0.7628866	1.2142659	-3.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	97	0.5463918	1.3151411	-3.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	97	0.9690722	1.2946493	-2.0000000	6.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	97	1.1649485	1.5790320	-3.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	97	1.1340206	1.3816420	-1.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	97	1.0103093	1.5645476	-3.0000000	6.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	97	0.7938144	1.3458125	-2.0000000	5.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	97	0.4948454	1.0320258	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	97	1.0103093	1.4178538	-3.0000000	6.0000000

## (Executive Officer-Post)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	72	7.8611111	1.5410400	4.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	72	8.0694444	1.4273623	4.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	72	8.2361111	1.3685919	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	72	8.4027778	1.2653481	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	72	8.2361111	1.3053849	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRS/CUR	72	7.9722222	1.8741953	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	72	8.1805556	1.3366055	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	72	7.3750000	1.7787779	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	72	7.3194444	2.0680425	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	72	8.6527778	1.3125582	4.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	72	8.1388889	1.4661010	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	72	8.9861111	1.2614887	4.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	72	9.2777778	0.9673868	6.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	72	9.1805556	1.0254012	6.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	72	9.2777778	0.9072823	7.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	72	9.3750000	0.8464923	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRS/REQ	72	9.1111111	1.0421478	7.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	72	9.4722222	0.8553431	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	72	8.8194444	1.2140769	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	72	8.5694444	1.4769052	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	72	9.5000000	0.7872219	7.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	72	9.2777778	0.8916233	7.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	72	1.1250000	1.5916817	-2.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	72	1.2083333	1.6092821	-3.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	72	0.9444444	1.5644725	-3.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	72	0.8750000	1.2993769	-2.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	72	1.1388889	1.2368241	-2.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRS	72	1.1388889	1.8637049	-2.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	72	1.2916667	1.5146003	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	72	1.4444444	1.7911275	-3.0000000	5.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	72	1.2500000	1.9482748	-3.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	72	0.8472222	1.3391160	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	72	1.1388889	1.5592121	-3.0000000	5.0000000

(Department Head-Post)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUTS	DEVL P & COMM COND VISH/CUR	44	7.1818182	1.8460861	3.0000000	10.0000000
C39QUTS	MANAGING CONFLICT/CUR	44	7.5691818	2.0619092	1.0000000	10.0000000
C44QUTS	DEVL P SUBORDINATES/CUR	44	8.2272727	1.2734068	4.0000000	10.0000000
C53QUTS	WRITING EFFECTIVELY/CUR	44	8.3409091	1.2378372	5.0000000	10.0000000
C54QUTS	POS & NEG FEEDBACK/CUR	44	7.7954545	1.6222228	3.0000000	10.0000000
C55QUTS	DELVR EFF ORAL PRES/CUR	44	8.0000000	1.5551064	3.0000000	10.0000000
C56QUTS	LISTENING EFFECTIVELY/CUR	44	8.2045455	1.8373331	1.0000000	10.0000000
C57QUTS	BLD WORK & SUPRT RELTN/CUR	44	7.5909091	2.1708232	1.0000000	10.0000000
C58QUTS	REP ORGN TO EXTRNL GRP/CUR	44	7.3853636	2.4132956	1.0000000	10.0000000
C59QUTS	CLIMATE OF OPEN COMM/CUR	44	8.4090909	1.6184362	5.0000000	10.0000000
C60QUTS	CONDUCT MEETINGS EFF/CUR	44	8.0227273	1.3891379	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QURS	DEVL P & COMM COND VISH/REQ	44	8.5909091	1.6749617	3.0000000	10.0000000
R39QURS	MANAGING CONFLICT/REQ	44	9.1136364	0.9453905	7.0000000	10.0000000
R44QURS	DEVL P SUBORDINATES/REQ	44	8.8181818	1.5291391	2.0000000	10.0000000
R53QURS	WRITING EFFECTIVELY/REQ	44	9.0681818	1.3011236	5.0000000	10.0000000
R54QURS	POS & NEG FEEDBACK/REQ	44	9.0909091	1.1374838	5.0000000	10.0000000
R55QURS	DELVR EFF ORAL PRES/REQ	44	9.1590909	1.0771017	5.0000000	10.0000000
R56QURS	LISTENING EFFECTIVELY/REQ	44	9.2954545	0.9286047	6.0000000	10.0000000
R57QURS	BLD WORK & SUPRT RELTN/REQ	44	8.7272727	1.3701746	5.0000000	10.0000000
R58QURS	REP ORGN TO EXTRNL GRP/REQ	44	8.3436364	2.1790857	0	10.0000000
R59QURS	CLIMATE OF OPEN COMM/REQ	44	9.2272727	1.0535353	5.0000000	10.0000000
R60QURS	CONDUCT MEETINGS EFF/REQ	44	9.1363636	1.0474978	6.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	44	1.4090909	2.5180112	-4.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	44	1.5454545	2.2041467	-3.0000000	9.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	44	0.5909091	1.4991188	-5.0000000	3.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	44	0.7272727	1.6616556	-5.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	44	1.2954545	2.0182832	-5.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	44	1.1590909	1.6836171	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	44	1.0909091	1.9978847	-2.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	44	1.1363636	2.2473851	-4.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	44	0.9772727	2.3673028	-4.0000000	7.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	44	0.8181818	1.6033791	-4.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	44	1.1136364	1.5584117	-3.0000000	5.0000000

## (Operations Officer-Post)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	16	7.6250000	1.9958295	4.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	16	8.1250000	1.2041595	6.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	16	8.7500000	1.3904436	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	16	8.3125000	1.3524669	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	16	8.4375000	1.2632630	6.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	16	7.9375000	1.3889444	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	16	8.2500000	1.5705625	6.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	16	8.0000000	1.4605935	5.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	16	7.3125000	2.1515498	4.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	16	8.3125000	1.4476993	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	16	7.5625000	1.3647344	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	16	9.0625000	1.5692355	4.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	16	9.3125000	1.4008926	5.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	16	9.0000000	1.5916449	5.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	16	9.1875000	0.8341663	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	16	9.1875000	0.8341663	8.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	16	8.7500000	1.0645813	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	16	9.1875000	1.7969882	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	16	9.0625000	0.9287088	8.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	16	8.2500000	1.9148542	4.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	16	9.0625000	1.4818344	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	16	8.0625000	1.9482898	3.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	16	1.4375000	1.7114808	0	5.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	16	1.1875000	1.7594980	-4.0000000	3.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	16	0.2500000	1.5705625	-2.0000000	3.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	16	0.8750000	1.3102163	0	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	16	0.7500000	1.0000000	-1.0000000	2.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	16	0.8125000	0.9810708	-1.0000000	2.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	16	0.9375000	2.1437895	-4.0000000	4.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	16	1.0625000	1.1814539	-1.0000000	3.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	16	0.9375000	1.5692355	-1.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	16	0.7500000	0.9303493	0	2.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	16	0.5000000	1.3165612	-3.0000000	2.0000000

## (Director-Post)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std. Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COND VISH/CUR	140	7.5714286	1.9084924	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	140	8.0928571	1.5309584	4.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	140	8.3500000	1.5773806	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	140	8.4285714	1.3996035	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	140	8.2857143	1.4003376	4.0000000	10.0000000
C58QUES	DELVR EFF ORAL PRES/CUR	140	8.1928571	1.4707665	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	140	8.3428571	1.5766800	3.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	139	7.5395683	1.8699228	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	140	7.6857143	1.9307646	2.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	140	8.4857143	1.2606420	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	139	8.1007194	1.4309972	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std. Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COND VISH/REQ	140	8.7500000	1.6798638	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	140	9.2642857	1.0769709	6.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	140	9.1857143	1.0497394	6.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	140	9.3142857	0.9677214	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	140	9.1071429	1.2448248	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	140	9.0857143	1.1090583	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	140	9.3214286	0.9077433	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	139	8.6474820	1.5690083	2.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	140	8.5142857	1.6647051	3.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	140	8.1142857	1.0531605	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	140	8.9857143	1.1504501	4.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std. Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	140	1.1785714	2.0009433	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	140	1.1714286	1.5170155	-2.0000000	6.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	140	0.8357143	1.4573590	-2.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	140	0.8857143	1.3527468	-3.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	140	0.8214286	1.6506491	-10.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	140	0.8928571	1.6079677	-3.0000000	6.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	140	0.9785714	1.6423700	-3.0000000	7.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	139	1.1079137	1.9804698	-4.0000000	6.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	140	0.8285714	1.8580676	-5.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	140	0.6285714	1.1464230	-2.0000000	3.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	139	0.8848921	1.4356220	-4.0000000	5.0000000

## (Other-Post)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	106	7.5943296	1.8861818	1.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	106	7.8867925	1.4756484	4.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	106	8.3207547	1.5215729	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	106	8.5094340	1.2667565	6.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	106	8.1320755	1.2654792	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	106	7.9811321	1.4927197	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	106	8.3301887	1.3289573	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	106	7.5471698	2.0383564	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	106	7.7641503	1.7596097	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	106	8.5471698	1.3390265	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	106	8.1132075	1.3043572	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	106	8.5754717	1.8358759	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	106	9.0566038	1.3858481	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	106	8.9905660	1.4375593	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	106	9.2264151	0.9589977	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	106	9.0849057	1.1051216	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	106	8.9716981	1.1251036	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	106	9.3301887	0.9020791	5.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	106	8.8584906	1.3623417	0	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	106	8.5943396	1.4731433	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	106	9.2830189	0.9129201	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	106	9.0377358	1.2104665	2.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	105	1.00000000	2.1258482	-6.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	105	1.1809524	1.9600871	-5.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	105	0.6761905	1.8160356	-4.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	105	0.7238095	1.4444538	-3.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	105	0.9619048	1.5988205	-3.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	105	1.00000000	1.5317160	-2.0000000	6.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	105	1.0095238	1.4773628	-2.0000000	5.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	105	1.3238095	1.7292464	-2.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	105	0.8380952	1.7160095	-6.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	105	0.7428571	1.2636073	-2.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	105	0.9333333	1.5705625	-7.0000000	5.0000000

## (Years Of Managerial Service 1 - 0 to 5 Years)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C31QUES	DEVL & COMM COMD VISH/CUR	144	7.0416667	1.9535694	1.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	144	7.5486111	1.7293431	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	144	7.8402778	1.6710752	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	144	8.1666667	1.4675988	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	144	7.8611111	1.5893408	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	144	7.8055556	1.6010389	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	144	7.8611111	1.5760937	3.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	143	7.0629371	2.0069034	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	144	6.9930556	2.1661623	1.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	144	8.1666667	1.4770979	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	144	7.6041667	1.4590866	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R31QUES	DEVL & COMM COMD VISH/REQ	145	8.7034483	1.3391754	3.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	145	9.1172414	1.1273337	5.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	145	9.0068966	1.2332013	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	145	9.0827586	1.639513	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	145	9.1034483	1.0050162	6.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	145	9.9379310	1.0489458	6.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	145	9.2137931	1.0748786	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	144	8.5803333	1.5029109	0	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	145	8.3517241	1.6309976	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	145	9.0482759	1.0693393	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	145	8.8758621	1.2126804	3.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	144	1.6597222	2.0726767	-4.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	144	1.5625000	1.8233863	-4.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	144	1.1597222	1.7042243	-3.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	144	0.9097222	1.6468372	-4.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	144	1.2361111	1.7096440	-2.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	144	1.1250000	1.7813133	-3.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	144	1.3472222	1.7869748	-4.0000000	7.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	143	1.5104895	2.0482460	-3.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	144	1.3472222	1.9765034	-3.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	144	0.8750000	1.3580885	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	144	1.2638889	1.6171550	-3.0000000	6.0000000

## (Years Of Managerial Service 2 - GT 5 to 10 Years)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COND VISH/CUR	173	7.7919075	1.6618260	3.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	173	7.8843931	1.6205222	1.0000000	10.0000000
C43QUES	DEVL P SUBORDINATES/CUR	173	8.3526012	1.3924450	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	173	8.4450867	1.3178743	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	173	8.1271676	1.2622876	4.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	173	7.8265896	1.5111941	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	173	8.3294798	1.5292110	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	173	7.7052023	1.7386932	3.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	173	7.7456647	1.7246873	3.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	173	8.6416185	1.2289633	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	173	8.1098266	1.4283534	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COND VISH/REQ	172	8.7906977	1.5493162	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	172	8.9825581	1.2772130	4.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	172	8.9651163	1.2872997	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	172	9.2034984	1.0919105	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	172	9.0116279	1.3067006	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	172	8.9476744	1.1909234	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	172	9.2732558	1.0033773	5.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	172	8.8139535	1.2236617	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	172	8.4941860	1.6454690	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	172	9.2441860	1.0252490	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	172	9.0872093	1.3193791	5.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COND VISH	172	1.0116278	1.8574597	-6.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	172	1.1104651	1.8271845	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	172	0.6220930	1.5378957	-5.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	172	0.7674419	1.3479412	-5.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	172	0.8953488	1.6589153	-10.0000000	5.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	172	1.1337209	1.6577392	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	172	0.9534884	1.5960989	-3.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	172	1.1220930	1.8707287	-4.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	172	0.7616279	1.7888981	-6.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	172	0.6104651	1.2209218	-4.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	172	0.9883721	1.4058706	-3.0000000	5.0000000



## (Years Of Managerial Service 3 - GT 10 to 15 Years)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISM/CUR	79	8.2025316	1.7125461	0	10.0000000
C35QUES	MANAGING CONFLICT/CUR	79	8.3164557	1.4723460	5.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	79	8.8227848	1.2274582	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	79	8.8354430	0.9927033	7.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	79	8.5569620	1.0830493	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	79	8.3544304	1.3400816	4.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	79	8.6075948	1.2951361	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	79	7.8734177	1.2137582	5.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	79	8.0759494	1.7229384	3.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	79	8.8227848	1.1740735	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	78	8.3974355	1.2519050	5.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISM/REQ	79	9.0253165	1.9146887	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	79	9.5063291	0.7986113	6.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	79	9.4050633	0.9676695	5.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	79	9.4177215	0.7780250	8.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	79	9.4177215	0.8103117	7.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	79	9.3544304	0.8921017	6.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	79	9.5822785	0.6719202	8.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	79	8.9367089	1.4079152	3.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	79	8.9113924	1.4952049	3.0000000	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	79	9.5316454	0.7482534	8.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	79	9.2025316	1.0048568	6.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISM	79	0.8227848	1.7741700	-8.0000000	6.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	79	1.1898734	1.5281425	-3.0000000	5.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	79	0.5822785	1.2970143	-2.0000000	4.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	79	0.5822785	0.9420054	-2.0000000	3.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	79	0.8607595	1.2061108	-2.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	79	1.0000000	1.4411534	-2.0000000	6.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	79	0.9746835	1.3298803	-2.0000000	4.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	79	1.0632911	1.5387455	-4.0000000	4.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	79	0.8354430	1.5805742	-4.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	79	0.7088608	1.1891809	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	78	0.8076923	1.2696016	-2.0000000	4.0000000

## (Years Of Managerial Service 4 - 15 Plus Years)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL P & COMM COMD VISM/CUR	79	8.3797468	1.3987522	5.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	79	8.5696203	1.2161683	6.0000000	10.0000000
C44QUES	DEVL P SUBORDINATES/CUR	79	8.8481013	1.1556839	5.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	79	8.6825443	1.2356282	5.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	79	8.6582278	1.1309864	5.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	79	8.6708861	1.1061775	5.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	79	8.6329114	1.2727642	5.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	79	8.2151899	1.6538292	0	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	79	8.5063291	1.5264625	0	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	79	9.0379747	1.3432080	6.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	79	8.6075949	1.2027503	5.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL P & COMM COMD VISM/REQ	79	9.0000000	1.6012815	1.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	79	9.4430380	0.9573847	6.0000000	10.0000000
R44QUES	DEVL P SUBORDINATES/REQ	79	9.3544304	1.1879521	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	79	9.3544304	0.9203953	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	79	9.4303797	0.9013316	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	79	9.3417722	1.0112961	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	79	9.5696203	0.7626463	7.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	79	9.0886076	1.0523463	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	79	8.9873418	1.5400104	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	79	9.4936709	0.8604325	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	79	9.1518987	1.3213196	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL P & COMM COMD VISM	79	0.6202532	1.5632297	-5.0000000	4.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	79	0.8734177	1.3240099	-3.0000000	4.0000000
Q44DELTA	DELTA-DEVL P SUBORDINATES	79	0.5063291	1.1969343	-2.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	79	0.6708861	1.3177440	-3.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	79	0.7721519	1.1317036	-3.0000000	4.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	79	0.6708861	1.3079787	-3.0000000	5.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	79	0.9367089	1.3806518	-2.0000000	4.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	79	0.8734177	1.4235120	-3.0000000	5.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	79	0.4810127	1.4837648	-5.0000000	4.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	79	0.4556962	0.9445860	-2.0000000	2.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	79	0.5443038	1.5508266	-7.0000000	4.0000000

# ANALYSIS OF VARIANCE BY DEMOGRAPHIC VARIABLES

## VARIABLE-GRADE (RANK)

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
GRADE	5	1 2 3 4 5

Number of Observations by Class and Rank

Group	Obs	Dependent variables
1	471	Q34DELTA Q34DELTA Q34DELTA Q34DELTA Q34DELTA Q34DELTA Q34DELTA Q34DELTA Q34DELTA
2	470	Q35DELTA
3	470	Q36DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values

# Analysis of Variance Worksheet

Dependent Variable: Q14CELEIA REGRESSION = 1288.7760 MSE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	38.444416	9.611104	2.70	0.044
Error	465	1677.441748	3.607402		
Corrected Total	470	1715.886164			
Adjusted R Square		0.97	9.611104		Q14CELEIA Mean
Adjusted F		9.611104	1.641114		1.116166
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
GRADE	4	38.444416	9.611104	2.70	0.044

Tukey's Studentized Range (HSD) Test for various Q14CELEIA

NOTE: This test controls the type I error rate, see REGD note

Alpha = 0.05 Confidence = 0.95 df = 466 MS Error = 3.607402  
Critical Value of Studentized Range = 7.1

Comparisons are shown in the table level are indicated by \*\*\*

GRADE Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
3 - 4	-0.7193	0.2321	1.1844
3 - 5	-1.2279	0.4223	1.6746
3 - 2	-0.7567	0.6620	1.3473
3 - 1	-0.6095	1.1242	2.8269
4 - 3	-1.1834	-1.2321	0.7193
4 - 5	-1.5414	-1.1903	1.9420
4 - 2	-1.4135	0.4360	1.2795
4 - 1	-1.2480	0.0721	2.6922
5 - 3	-2.0796	-0.4223	1.2176
5 - 4	-1.9420	-0.1903	1.5614
5 - 2	-1.3569	0.2320	1.8302
5 - 1	-1.5834	0.6618	2.9470
2 - 3	-1.2473	-0.6620	-0.9567
2 - 4	-1.2735	-0.4360	0.4135
2 - 5	-1.4302	-0.7397	1.3508
2 - 1	-1.2235	0.4421	2.1077
1 - 3	-1.8269	-1.1042	0.8105
1 - 4	-2.6922	-0.8721	0.9480
1 - 5	-2.9470	-0.6618	1.5834
1 - 2	-2.1077	-0.4421	1.2235

# ANALYSIS OF VARIANCE BY DEMOGRAPHIC VARIABLES

## VARIABLE-GENDER

### Analysis of Variance Procedure Class Level Information

Class	Level	Value
SEXES	2	0 1

Number of Observations in data set = 676

Group	N	Dependent Variables
1	460	Q30DELTA Q30DELTA Q440DELTA Q530DELTA Q540DELTA Q770DELTA Q780DELTA Q790DELTA Q790DELTA
2	459	Q570DELTA
3	459	Q600DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values

# Analysis of Variance Procedure

Dependent Variable: Q34DELTA DELTA-DEVELOP & 1996 LINE VIEW

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	17.1187100	17.1187100	4.03	0.049
Error	458	164.8114374	0.3598503		
Corrected Total	459	181.9301474			
R-Square		0.09399	Root MSE	Q34DELTA Mean	
Adjusted R-Square		0.08774	1.4747645	1.1217141	
Source	DF	Anova SS	Mean Square	F Value	Pr > F
QUADDER	1	15.1560701	15.1560700	4.03	0.049

Tukey's Studentized Range (HSD) Test for variable: Q34DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGWZ.

Alpha = 0.05 df = 458 MSE = 0.3598503  
Critical Value of Studentized Range = 2.779  
Minimum Significant Difference = 0.4944  
Maximum Mean of cell means = 111.5304

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	QUADDER
A	1.5492	65	1
B	1.1481	395	0

# Analysis of Variance Procedure

Dependent Variable: Q39DELTA DELTA-MANAGING CONFLICT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	10.70657677	10.70657677	3.45	0.0641
Error	458	1359.73037975	2.96775192		
Corrected Total	459	1369.93695652			
R-Square		0.0078	Root MSE	Q39DELTA Mean	
Adjusted R-Square		0.007548	1.72271424	1.20391308	
Source	DF	Anova SS	Mean Square	F Value	Pr > F
QUADDER	1	10.70657677	10.70657677	3.45	0.0641

Tukey's Studentized Range (HSD) Test for variable: Q39DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGWZ.

Alpha = 0.05 df = 458 MSE = 2.9677519  
Critical Value of Studentized Range = 2.779  
Minimum Significant Difference = 0.4531  
Maximum Mean of cell means = 111.5304

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	QUADDER
A	1.6200	65	1
A	1.1620	395	0

# Analysis of Variance Procedure

Dependent Variable: Q57DELTA DELTA-WRITING EFFECTIVENESS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	419885426	419885426	4.89	0.0337
Error	458	419849583	9167020		
Corrected Total	459	839735009			
R-Square					
0.00916					
Adjusted R-Sq					
-0.00816					
Root MSE					
3.04419					
Q57DELTA Mean					
1.0769					
Source	DF	Anova SS	Mean Square	F Value	Pr > F
ENDER	1	819826426	819826426	4.89	0.0337

Tukey a Studentized Range (HSD) Test for variable: Q57DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGW.

Alpha=0.05 df=458 MSE= 9167020  
Critical Value of Studentized Range= 2.379  
Minimum Significant Difference= 0.3517  
Harmonic Mean of cell sizes= 11.6324

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	ENDER
A	1.0769	65	1
B	0.6937	395	0

# Analysis of Variance Procedure

Dependent Variable: Q57DELTA DELTA-BIG WORK & SUPRA RELIN

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	13.87265323	13.87265323	4.24	0.0401
Error	457	1496.01495701	3.27355374		
Corrected Total	458	1509.88761024			
R-Square					
0.009168					
Adjusted R-Sq					
-0.008168					
Root MSE					
1.80928648					
Q57DELTA Mean					
1.0769283					
Source	DF	Anova SS	Mean Square	F Value	Pr > F
ENDER	1	13.87265323	13.87265323	4.24	0.0401

Tukey a Studentized Range (HSD) Test for variable: Q57DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGW.

Alpha=0.05 df=457 MSE= 3.273554  
Critical Value of Studentized Range= 2.779  
Minimum Significant Difference= 0.476  
Harmonic Mean of cell sizes= 11.6524

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	ENDER
A	1.6254	65	1
B	1.1168	394	0

## ANALYSIS OF VARIANCE BY DEMOGRAPHIC VARIABLES

### VARIABLE-EDUCATION

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
ED	3	1 2 3

Number of observations in data set = 175

Group	Obs	Dependent Variables
1	459	Q1AGESTA Q3AGESTA L64DECELA Q177DECELA L58DECELA Q177DECELA 2 DECELA Q177DECELA Q177DECELA
2	450	Q177DECELA
3	460	L64DECELA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values



# Analysis of Variance Procedure

Dependent Variable	Q44DELTA	DELTA-CONDUCT MECHANICALS			
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	16.24946163	8.124730815	3.96	0.0247
Error	466	1076.4394816	2.30995332		
Corrected Total	468	1092.6889432			
R-Square		0.0148	Root MSE	Q44DELTA Mean	
Adjusted R-Square		0.013709	199.1792	0.7632622	
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Model	2	16.24946163	8.124730815	3.96	0.0247

Tukey's Studentized Range (HSD) Test for variable: Q44DELTA

NOTE: This test controls the type I experimentwise error rate

Alpha=0.05 Confidence=0.95 df=466 MSW=2.3099533

Critical Value of Studentized Range=3.325

Comparisons significant at the 0.05 level are indicated by \*\*\*

Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
1 - 2	-0.1499	0.2015	0.5529	***
1 - 3	-0.1515	0.8763	1.4511	
2 - 1	-0.5529	-0.2015	0.1499	
2 - 3	-0.1211	0.6748	1.4709	
3 - 1	-1.4511	-0.8763	-0.1499	***
3 - 2	-1.4709	-0.6748	-0.1211	

# Analysis of Variance Procedure

Dependent Variable	Q62DELTA	DELTA-CONDUCT MECHANICALS EFF			
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	18.50936409	9.25468204	4.16	0.0159
Error	466	1030.0086699	2.2107498		
Corrected Total	468	1048.5180389			
R-Square		0.0175	Root MSE	Q62DELTA Mean	
Adjusted R-Square		0.017653	133.7395	0.96754972	
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Model	2	18.50936409	9.25468204	4.16	0.0159

Tukey's Studentized Range (HSD) Test for variable: Q62DELTA

NOTE: This test controls the type I experimentwise error rate.

Alpha=0.05 Confidence=0.95 df=466 MSW=2.21075

Critical Value of Studentized Range=3.325

Comparisons significant at the 0.05 level are indicated by \*\*\*.

Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
1 - 2	-0.1417	0.3865	0.7312	***
1 - 3	-0.1402	0.5185	1.2793	
2 - 1	-0.7312	-0.3865	-0.0417	***
2 - 3	-0.6477	0.1320	0.9118	
3 - 1	-1.2793	-0.5185	-0.1402	
3 - 2	-1.9118	-0.1320	-0.6477	

## ANALYSIS OF VARIANCE BY DEMOGRAPHIC VARIABLES

### VARIABLE-POSITION

#### Analysis of Variance Procedure Class Level Information

Class	Levels	Values
POST	4	DO BE DOB DOB OTHER NO

Number of observations in data set = 476

Group	Ns	Dependent Variables
1	474	Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA Q3ACELTA
2	473	Q57CESTA
3	473	Q67CESTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

Note: Analysis of variance tests indicated that there was no statistically significant differences among the variable position at the 0.05 level.

## ANALYSIS OF VARIANCE BY DEMOGRAPHIC VARIABLES

### VARIABLE-YEARS OF MANAGERIAL SERVICE

#### Analysis of Variance Procedure Class Level Information

Class	Levels	Values
YEARSP15	4	1 2 3 4 0

Number of observations in data set = 176

Group	Obs	Dependent Variables
1	474	DADELTA Q1DELTA DA4DELTA Q17DELTA DA6DELTA Q17DELTA Q14DELTA Q17DELTA Q3DELTA
2	473	Q5DELTA
3	473	Q6DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

# Analysis of Variance Summary

Source of Variation	SS	df	MS	F	p-value	Significance
Between Groups	10.0	2	5.0000	1.0000	.3571	
Within Groups	10.0	18	.5556			
Total	20.0	20				
Corrected Total	10.0	19				
R-squared						0.5000
Adjusted R-squared						0.4737
Standard Error						0.7454
ANOVA						
Sum of Squares	10.0	2	5.0000	1.0000	.3571	
Mean Square	5.0000	2	5.0000	1.0000	.3571	
F-Statistic				1.0000	.3571	
p-value					.3571	

Table 1: Studentized Range (SR) Test for Variance, 2400000

Note: This test controls the type I error rate at 0.05.

Alpha = 0.05, Confidence = 0.95, df = 18, MS = 0.5556

Critical Value of Studentized Range = 2.85

Comparison significant at the 0.05 level are indicated by \*\*\*

Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	Significance
1.0 - 2.0	0.1000	0.0000	1.1000	***
1.0 - 3.0	0.1000	0.0000	1.1000	***
1.0 - 4.0	0.1000	0.0000	1.1000	***
2.0 - 3.0	-0.1000	-0.0000	0.1000	***
2.0 - 4.0	-0.1000	-0.0000	0.1000	***
3.0 - 4.0	-0.1000	-0.0000	0.1000	***
1.0 - 1.0	0.0000	0.0000	0.0000	***
1.0 - 2.0	-0.1000	-0.0000	0.1000	***
1.0 - 3.0	-0.1000	-0.0000	0.1000	***
1.0 - 4.0	-0.1000	-0.0000	0.1000	***
2.0 - 1.0	0.1000	0.0000	1.1000	***
2.0 - 2.0	0.0000	0.0000	0.0000	***
2.0 - 3.0	-0.1000	-0.0000	0.1000	***
2.0 - 4.0	-0.1000	-0.0000	0.1000	***
3.0 - 1.0	0.1000	0.0000	1.1000	***
3.0 - 2.0	0.1000	0.0000	1.1000	***
3.0 - 3.0	0.0000	0.0000	0.0000	***
3.0 - 4.0	-0.1000	-0.0000	0.1000	***
4.0 - 1.0	0.1000	0.0000	1.1000	***
4.0 - 2.0	0.1000	0.0000	1.1000	***
4.0 - 3.0	0.1000	0.0000	1.1000	***
4.0 - 4.0	0.0000	0.0000	0.0000	***

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[illegible]

Table 4. Studentized Residual (SR) Test for Variance HOMOGENEITY

NOTE: This test controls the type I experimental error rate

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Crystalline Value of Ionized and Nonionized Species: 5.64

Comparisons significant at the 5% level are indicated by \*\*\*.

Температура Среднесуточная	Балансировочный коэффициент по температуре	Поправочный коэффициент по давлению	Балансировочный коэффициент по давлению
1,0 - 3,0	-0,2426	0,2728	0,0478
3,0 - 4,0	-0,0443	0,4059	0,0494
4,0 - 6,0	0,2738	0,6841	0,3543
6,0 - 8,0	-0,0874	-0,5704	0,1454
8,0 - 10,0	-0,5158	0,2794	0,8764
10,0 - 12,0	-0,0827	0,5145	1,1536
12,0 - 14,0	-0,0466	-0,4520	0,1443
14,0 - 16,0	-0,4784	0,2784	0,5274
16,0 - 18,0	-0,3462	0,2370	0,8343
18,0 - 20,0	-1,3543	-0,3881	-0,2798
20,0 - 22,0	-1,7156	-0,5885	-0,5870
22,0 - 24,0	-0,9341	-0,2370	0,5460

# Analysis of Variance (ANOVA)

Dependent Variable: 244DELTA (mm) (Factorial ANOVA)

Source	DF	Sum of Squares	Mean Square	F Value	P-Value
Model	3	22.8578779	7.61929263	4.99	0.0061
Error	470	1262.744672	2.686478		
Corrected Total	473	1285.602549			
R-Square		0.0178	Root MSE		1.63904
Adjusted R-Square		0.0167	Root MSE		1.63904
Source	DF	Sum of Squares	Mean Square	F Value	P-Value
Model	3	22.8578779	7.61929263	4.99	0.0061

Tukey's Studentized Range (HSD) Test for variable 244DELTA

NOTE: This test controls the type I experimentwise error rate

Alpha = 0.05 Confidence = 0.95 df = 470 MSW = 2.68648  
Critical Value of Studentized Range = 3.646

Comparisons significant at the 0.05 level are indicated by \*\*\*

Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	Type
1.0 - 2.0	1.1667	1.6176	***
1.0 - 3.0	0.2346	1.9774	***
1.0 - 4.0	0.1176	1.6534	***
2.0 - 1.0	-0.9795	-0.5276	***
2.0 - 3.0	-0.4871	-0.0398	***
2.0 - 4.0	-0.4112	0.1158	***
3.0 - 1.0	-1.1233	-0.5774	***
3.0 - 2.0	-0.5667	-0.0398	***
3.0 - 4.0	-0.5439	0.0795	***
4.0 - 1.0	-1.1962	-0.6524	***
4.0 - 2.0	-0.6427	-0.1158	***
4.0 - 3.0	-0.6928	-0.0795	***

# Analysis of Variance Procedure

Dependent Variable: Q57DEBTA DELTA=GLM Model: Q57DEBTA

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	24.68566602	8.22888867	2.55	0.0545
Error	469	1539.44101174	3.28241197		
Corrected Total	472	1564.12667776			
R-Square = 0.0156					
Adjusted R-Square = 0.0146					
Root MSE = 1.8116734					
Q57DEBTA Mean = 1.1551549					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
YR6GRDPOS	3	14.1161100	4.7053700	2.55	0.0545

Tukey's Studentized Range (HSD) Test for variable: Q57DEBTA

NOTE: This test controls the type I experimentwise error rate.

Alpha = 0.05 Confidence = 0.95 df = 469 MSE = 3.28241197  
Critical Value of Studentized Range = 3.646

Comparisons significant at the 0.05 level are indicated by \*\*\*

YR6GRDPOS Comparison	Simultaneous Lower Confidence Limit		Difference Between Means	Simultaneous Upper Confidence Limit	
1.0 - 2.0	+0.1403	0.3884	0.9571	0.9571	
1.0 - 3.0	-0.1977	0.4473	1.1091	1.1091	
1.0 - 4.0	-0.5178	0.6371	1.2459	1.2459	
2.0 - 1.0	-0.9171	-0.3684	0.1403	0.1403	
2.0 - 3.0	-0.5761	0.0588	0.8937	0.8937	
2.0 - 4.0	-0.2862	0.2487	0.8818	0.8818	
3.0 - 1.0	+1.1021	-0.4472	0.2077	0.2077	
3.0 - 2.0	+0.6937	-0.0588	0.5761	0.5761	
3.0 - 4.0	-0.5534	0.1899	0.9322	0.9322	
4.0 - 1.0	-1.2919	-0.6371	0.5178	0.5178	
4.0 - 2.0	-0.8936	-0.2487	0.3862	0.3862	
4.0 - 3.0	+0.9332	-0.1899	3.5534	3.5534	





ANOVA for Dependent Measures

Source	SS	df	Mean Square	F Value	Pr > F
Model	28.8617516	3	9.6205839	4.41	0.0145
Error	113.4212773	444	0.2551245		
Corrected Total	142.2830289	447			
R Square	0.2025		Root MSE	0.5051	
Adjusted R Square	0.1974		Mean Square Error	0.2551	
Source	df	Mean Square	F Value	Pr > F	
TRNGRPOS	3	9.6205839	4.41	0.0145	

Tukey a Studentized Range (HSD) Test for variable \_C63DE17A

NOTE: This test controls the type I experimentwise error rate.

Alpha=0.05 dfError=444 df=449 MSE=0.2551245

Critical Value=3 Studentized Range=3.646

Comparisons significant at the 0.05 level are indicated by \*\*\*.

TRNGRPOS Comparison	Studentized t-Value	Difference Between Means	Simultaneous Upper Confidence Limit
1.0 - 2.0	0.1347	0.2755	0.7058
1.0 - 3.0	-0.0749	0.4562	0.9917
1.0 - 4.0	0.1443	0.7196	1.2529 ***
2.0 - 1.0	-0.1347	-0.2755	-1.1547
2.0 - 3.0	-0.1163	0.1807	0.7007
2.0 - 4.0	-0.1714	0.4441	0.9418
3.0 - 1.0	0.1347	-0.4562	-0.0743
3.0 - 2.0	0.1714	-0.1807	0.3343
3.0 - 4.0	-0.1443	0.2624	0.8714
4.0 - 1.0	-1.1714	-0.7196	-0.1863 ***
4.0 - 2.0	-0.9628	-0.4441	0.0736
4.0 - 3.0	-0.0714	-0.2624	0.3446

# APPENDIX D

## COMMUNICATION RESPONSES MEANS AND DELTAS BY DoN SHORT COURSES

(Non Participants In DoN Short Courses)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COMD VISH/CUR	207	7.4251208	1.7743991	2.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	207	7.8647343	1.6183798	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	207	8.2173913	1.3521022	3.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	207	8.3043478	1.4035774	3.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	207	8.1062802	1.4032933	3.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	207	8.0144928	1.5311594	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	207	8.2512077	1.4686562	3.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	207	7.3816425	1.9494214	G	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	207	7.5410628	1.9919754	G	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	207	8.6038647	1.2493045	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	206	7.9708739	1.4344630	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COMD VISH/REQ	206	8.7572816	1.8046641	1.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	206	9.1601942	1.1427696	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	206	9.1067561	1.2090119	4.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	206	9.1504854	0.9736403	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	206	9.1165049	1.0387701	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	206	9.0728155	1.0497567	5.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	206	9.2427184	1.0542922	3.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	206	8.6650485	1.5236163	G	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	206	8.5873786	1.5813398	G	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	206	9.2281553	1.0271360	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	206	8.9223301	1.2469617	2.0000000	10.0000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COMD VISH	206	1.3446602	2.0296931	-5.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	206	1.3058252	1.7720499	-4.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	206	0.8980593	1.5058572	-5.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	206	0.8543689	1.4973653	-5.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	206	1.0184175	1.5364234	-5.0000000	7.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	206	1.0679612	1.6573804	-4.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	206	1.0000000	1.5710801	-4.0000000	7.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	206	1.2861165	1.9266299	-4.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	206	1.0582524	1.8653163	-4.0000000	7.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	206	0.6310680	1.2015461	-4.0000000	4.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	205	0.9609756	1.5744402	-7.0000000	5.0000000

## (Participants In DoN Short Courses)

(Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVL & COMM COND VISH/CUR	268	7.9664179	1.7849745	0	10.0000000
C39QUES	MANAGING CONFLICT/CUR	268	8.0485075	1.6009938	1.0000000	10.0000000
C44QUES	DEVL SUBORDINATES/CUR	268	8.4664179	1.5271547	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	268	8.5895522	1.2464943	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	268	8.2835821	1.3772466	4.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	268	8.0746269	1.4566231	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	268	8.3097015	1.5155805	1.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	267	7.8127341	1.7392393	2.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	268	7.8208955	1.8414729	2.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	268	8.5858209	1.3533508	3.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	268	8.1753731	1.4019215	4.0000000	10.0000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVL & COMM COND VISH/REQ	269	8.8996283	1.5359983	0	10.0000000
R39QUES	MANAGING CONFLICT/REQ	269	9.2081784	1.1202712	4.0000000	10.0000000
R44QUES	DEVL SUBORDINATES/REQ	269	9.1226766	1.2322647	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	269	9.2862454	1.0419541	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	269	9.2230483	1.1339686	0	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	269	9.0817844	1.1166995	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	269	9.4423792	0.8603125	6.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	268	8.9216418	1.1761550	5.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	269	8.6135829	1.6411134	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	269	9.3085502	0.9568885	5.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	269	9.1524164	1.0343917	4.0000000	10.0000000

(altas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	268	0.9328258	1.7808711	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	268	1.1567164	1.6731163	-5.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	268	0.6528851	1.5286417	-4.0000000	6.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	268	0.6940289	1.2937627	-4.0000000	5.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	268	0.9365672	1.5114069	-10.0000000	6.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	268	1.0037313	1.5829150	-3.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	268	1.1305970	1.6034012	-3.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	267	1.1048689	1.7332048	-4.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	268	0.7873134	1.7275872	-6.0000000	8.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	268	0.7201493	1.2422210	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	268	0.9738806	1.4310850	-4.0000000	6.0000000

# Analysis Of Variance Procedure By Variable DoN Short Courses

## Analysis of Variance Procedure Class Level Information

Class	Levels	Values
CONSHORT	2	0 1

Number of observations in data set = 476

Group	Obs	Dependent Variables
1	474	Q34DELTA Q39DELTA Q44DELTA Q53DELTA Q54DELTA Q55DELTA Q56DELTA Q58DELTA Q59DELTA
2	473	Q57DELTA
3	473	Q60DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

# Analysis of Variance Procedure

Dependent Variable: Q34CELT4 DELTA=DEVP 5 1000 CONO V108

Source	DF	Sum of Squares	Mean Square	F Value	Pr
Model	1	13.7330147	13.7330147	8.85	0.0051
Error	472	1691.9257719	3.5825345		
Corrected Total	473	1705.6587866			
R Square		0.8			0.8000000
Adjusted R Square		0.799			0.7999999
Source	DF	Sum of Squares	Mean Square	F Value	Pr
CONCENT	1	13.7330147	13.7330147	8.85	0.0051

Tukey's Studentized Range (HSD) Test for variable: Q34CELT4

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGWZ.

Alpha= 0.05 df= 472 MSE= 3.58305  
Critical Value of Studentized Range= 2.179  
Minimum Significant Difference= 0.144  
Harmonic Mean of cell sizes= 332.9451

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	CONCENT
A	1.3447	236	0
B	0.9338	240	1

# Analysis Of Variance Procedure By Composite Variable DoN Short Course and Group 1 (Medical Corps)

Analysis of Variance Procedure  
 Class Level Information

Class	Levels	Values
DOGRUP1	2	1 1

Number of Observations in data set = 276

Group	Nbs	Dependent Variables
1	155	13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA 13ABDELTA
2	120	13ABDELTA

NOTE: Variables in each group are consistent with respect to the presence  
 or absence of missing values

# Analysis of Variance Procedure

Dependent Variable: Q44DELTA DELTA-DEVELP 1 OTHER TIME VIEW

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	34.72863089	34.72863089	9.52	.0041
Error	151	615.8333451	4.07836653		
Corrected Total	152	650.5619859			
R-Square					
0.053083					
Adjusted R-Square					
0.049499					
Source	DF	Approx SS	Mean Square	F Value	Pr > F
CONGRP1	1	34.72863089	34.72863089	9.52	.0041

Tukey's Studentized Range (HSD) Test for variable: Q44DELTA

NOTE: This test controls the type I experimental error rate but generally has a higher type II error rate than REGWZ.

Alpha=0.05 df=151 MSRW=4.07837  
Critical Value of Studentized Range=2.794  
Minimum Significant Difference=1.4196  
Harmonic Mean of cell sizes=78.77174

Means with the same letter are not significantly different.

Tukey grouping	Mean	N
A	1.0615	65
B	0.8977	88

## Analysis of Variance Procedure

Dependent Variable: Q44DELTA DELTA-DEVELP SUBORDINATES

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	10.34561542	10.34561542	4.35	0.0398
Error	151	353.9168398	2.34381986		
Corrected Total	152	364.2624552			
R-Square					
0.027885					
Adjusted R-Square					
0.024496					
Source	DF	Approx SS	Mean Square	F Value	Pr > F
CONGRP1	1	10.34561542	10.34561542	4.35	.0398

Tukey's Studentized Range (HSD) Test for variable: Q44DELTA

NOTE: This test controls the type I experimental error rate but generally has a higher type II error rate than REGWZ.

Alpha=0.05 df=151 MSRW=2.34382  
Critical Value of Studentized Range=2.794  
Minimum Significant Difference=0.4944  
Harmonic Mean of cell sizes=78.77174

Means with the same letter are not significantly different.

Tukey grouping	Mean	N
A	1.2462	65
B	0.7273	88

# Analysis of Variance Procedure

Dependent Variable: Q5DELTA					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	11.7664001	11.7664001	6.76	0.0122
Error	151	269.7336618	1.7863223		
Corrected Total	152	278.5000619			

R-Square	Adj R-Sq	Root MSE	Q5DELTA Mean
0.042364	0.04098	1.3363319	1.76575163

Source	DF	Anova SS	Mean Square	F Value	Pr > F
DELTA	1	11.7664001	11.7664001	6.76	0.0122

Tukey's Studentized Range (HSD) Test for variable Q5DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than HSD.

Alpha = 0.05 df = 151 MSR = 1.766704  
Critical Value of Studentized Range = 2.734  
Minimum Significant Difference = 0.6271

Harmonic Mean of cell sizes = 4.77124

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N
A	1.7615	65
B	0.5000	88

# Analysis of Variance Procedure

Dependent Variable: Q5DELTA					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	24.11540290	24.11540290	7.43	0.0072
Error	151	490.5682556	3.24877142		
Corrected Total	152	514.6797385			

R-Square	Adj R-Sq	Root MSE	Q5DELTA Mean
0.046855	0.04578	1.8024459	1.76575163

Source	DF	Anova SS	Mean Square	F Value	Pr > F
DELTA	1	24.11540290	24.11540290	7.43	0.0072

Tukey's Studentized Range (HSD) Test for variable Q5DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than HSD.

Alpha = 0.05 df = 151 MSR = 3.24877  
Critical Value of Studentized Range = 2.734  
Minimum Significant Difference = 0.5924

Harmonic Mean of cell sizes = 4.77124

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N
A	1.7677	65
B	0.7245	88



# Analysis Of Variance Procedure By Composite Variable DoN Short Course and Position 3 (Department Head)

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
COMP013	2	4 1

Number of observations in data set = 476

NOTE: All dependent variable are consistent with respect to the presence or absence of missing values.  
However only 11 observations can be used in this analysis

Received 2008-05-20; revised 2008-06-10; accepted 2008-06-10

Page 26 of 26, Date: 10/27/2014, Time: 10:36:12 AM, User: jason

Source	df	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	40.10447191	40.10447191	4.23	0.0429
Error	42	179.44175243	4.27242268		
Total and Cor.	43	219.54622435			

R-Square	C.V.	Root MSE	Adjusted R-Square
0.991500	1.663696	0.4437954	0.989999

Source	DF	Approx. SS	Mean Square	F Value	Pr > F
Corrected	1	17.1640196	17.1640196	4.70	0.035

Tukey's Studentized Range (SRSD) Test for variable: **DEVELOPS**

```
NOTE This test controls the type I experimentwise error rate but generally has a subject type
      error rate like RESMQ
```

Alpha = 0.05 df= 40 MSB = 7.6127  
Critical Value of Studentized Range = 1.95  
Minimum Significant Differences = 1.498  
WARNING: Cell sizes are not equal  
HARMONIC MEAN of cell sizes= 21.5611

Means with the same letter are not significantly different.

Tukey Grouping	Mean	SD	Observations
A	1.3404	1.0	1
B	0.4000	0.5	1

Analysis Of Variance Procedure By Composite Variable  
DoN Short Course and Position 5 (Operations Officer)

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
SHORTCSE	2	0 1

Number of observations in data set = 476

NOTE: All dependent variable not consistent with respect to the presence or absence of missing values. However only 46 observations can be used in this analysis.

## ANALYSIS OF VARIATION PRINCIPLE

Dependent Variable:  $\overline{Y}_{ijk}$  Error:  $\overline{Y}_{ijk} - \overline{Y}_{ij..}$  Model:  $\overline{Y}_{ij..} - \overline{Y}_{i...}$ 

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	15.05566640	15.05566640	10.19	0.0049
Error	18	11.36181818	0.6312177		
Corrected Total	19	26.41746458			
R-Square		0.57	Root MSE		0.79450
Adjusted R-Square		0.54	Root MSE		0.79450
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Correct	1	15.05566640	15.05566640	10.19	0.0049

Tukey's Studentized Range (HSD) Test for Variation of  $\overline{Y}_{ij..}$ 

NOTE: The test is for the case 1 experimental error rate and 1 treatment has a higher type II error rate than the others.

Alpha=0.05 df=18 MSFE=1.50721  
Critical Value of Studentized Range=3.11  
Minimum Significant Difference=1.144

Harmonic Mean of cell sizes=5.5

Means with the same letter are not significantly different

Tukey Grouping	Mean	n	Signif.
A	2.4000	5	
B	2.2727	14	

Analysis Of Variance Procedure By Composite Variable  
DoN Short Course and Position 6 (Director)

Analysis of Variance Procedure  
 Class Level Information

Class	Levels	Values
DOORST6	2	0 1

Number of Observations in Data Set = 476

Group	Obs	Dependent Variables
1	140	Q34DELTA Q34DELTA Q44DELTA Q44DELTA Q44DELTA Q44DELTA Q54DELTA Q54DELTA Q54DELTA
2	139	Q57DELTA
3	137	Q67DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

# Analyze of Variance for Y

Dependent Variable: Q18DELTA DELTA-DELTA 1 (DMS) CONC (1000)

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	44.74621660	44.74621660	10.47	0.0017
Error	138	521.7897968	3.78108547		
Corrected Total	139	566.5360134			
R Square		.0789			Adjusted R Square
Q 180421		163.3993	1.9257760		0.2755149
Source	DF	Mean SS	Mean Square	F Value	Pr > F
CONCSTR	1	44.74621660	44.74621660	10.47	0.0017

Tukey's Studentized Range (HSD) Test for variable Q18DELTA

NOTE: This test controls the type I experimentwise error rate, but generally has a higher type II error rate than REGWZ.

Alpha= 0.05 df= 138 MSE= 3.78109  
Critical Value of t= 1.982 Range= 3.795  
Minimum Significant Difference= 0.646

Randomized Mean of cell means= 66.48510

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	CONCSTR
A	1.4974	74	0
B	0.5625	64	1

# APPENDIX E

## COMMUNICATION RESPONSES MEANS AND DELTAS BY DoD POSTGRADUATE EDUCATION

(Non Participants In DoD Postgraduate Education)

(Perceived Self-rated Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34QURS	DEVL & COMM COND VISH/CS	280	7.4821439	1.9884273	0	10.000000
Q39QURS	MANAGING CONFLICT/CUR	280	7.3000000	1.6892999	1.0000000	10.000000
Q44QURS	DEVL SUBORDINATES/CUR	280	6.3282867	1.3748448	3.0000000	10.000000
Q53QURS	WRITING EFFECTIVELY/CUR	280	6.3769754	1.3518482	3.0000000	10.000000
Q54QURS	POS & NEG FEEDBACK/CUR	280	6.1257143	1.4278585	3.0000000	10.000000
Q55QURS	DELIV EFF ORAL PRES/CUR	280	7.8607143	1.5009748	3.0000000	10.000000
Q56QURS	LISTENING EFFECTIVELY/CUR	280	8.2857143	1.5858871	1.0000000	10.000000
Q57QURS	BLD WORK & SUPRT RELTN/CUR	279	7.4980079	1.8978768	0	10.000000
Q58QURS	REP ORGN TO EXTRNL GRP/CUR	280	7.4107143	2.0804050	0	10.000000
Q59QURS	CLIMATE OF OPEN COMM/CUR	280	8.2882857	2.3887253	3.0000000	10.000000
Q60QURS	CONDUCT MEETINGS EFF/CUR	280	7.8643857	2.4684774	3.0000000	10.000000

(Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34QRS	DEVL & COMM COND VISH/REQ	279	8.8881720	1.8313817	0	10.000000
Q39QRS	MANAGING CONFLICT/REQ	279	8.1279322	1.2773546	8.0000000	10.000000
Q44QRS	DEVL SUBORDINATES/REQ	279	9.0537634	1.2176660	8.0000000	10.000000
Q53QRS	WRITING EFFECTIVELY/REQ	279	9.1827957	1.0417152	9.0000000	10.000000
Q54QRS	POS & NEG FEEDBACK/REQ	279	9.1131111	1.2776631	9	10.000000
Q55QRS	DELIV EFF ORAL PRES/REQ	279	9.0714885	1.1880750	9.0000000	10.000000
Q56QRS	LISTENING EFFECTIVELY/REQ	279	9.3882437	1.0239770	9.0000000	10.000000
Q57QRS	BLD WORK & SUPRT RELTN/REQ	279	8.4870504	2.4241003	0	10.000000
Q58QRS	REP ORGN TO EXTRNL GRP/REQ	279	8.4285233	2.7035398	0	10.000000
Q59QRS	CLIMATE OF OPEN COMM/REQ	279	9.2888888	2.0188378	9.0000000	10.000000
Q60QRS	CONDUCT MEETINGS EFF/REQ	279	9.0178211	2.1203008	9.0000000	10.000000

(Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVL & COMM COND VISH	279	1.2150538	1.8444597	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	279	1.2365591	0.8114203	-9.0000000	9.0000000
Q44DELTA	DELTA-DEVL SUBORDINATES	279	0.8207888	1.6571738	-9.0000000	8.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	279	0.8100358	1.4653458	-9.0000000	7.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	279	0.8820789	1.5833889	-10.0000000	1.0000000
Q55DELTA	DELTA-DELIV EFF ORAL PRES	279	1.0537763	1.6095416	-8.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	279	1.0286738	1.6531751	-8.0000000	9.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	279	1.1978617	3.3058320	-8.0000000	9.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	279	1.0210888	1.8892814	-8.0000000	9.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	279	0.8338889	2.2908418	-8.0000000	8.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	279	1.0409319	2.4389783	-9.0000000	9.0000000

## (Participants In DoD Postgraduate Education)

## (Perceived Current Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C34QUES	DEVLPL & COMM COND VISH/CUR	195	8.0871795	1.6364375	1.0000000	10.0000000
C39QUES	MANAGING CONFLICT/CUR	195	8.0668667	1.5434152	2.0000000	10.0000000
C44QUES	DEVLPL SUBORDINATES/CUR	195	8.5282051	1.3633549	4.0000000	10.0000000
C53QUES	WRITING EFFECTIVELY/CUR	195	8.5897436	1.2746123	4.0000000	10.0000000
C54QUES	POS & NEG FEEDBACK/CUR	195	8.3076923	1.3384451	4.0000000	10.0000000
C55QUES	DELVR EFF ORAL PRES/CUR	195	8.1743590	1.4544794	3.0000000	10.0000000
C56QUES	LISTENING EFFECTIVELY/CUR	195	8.2820513	1.4055652	4.0000000	10.0000000
C57QUES	BLD WORK & SUPRT RELTN/CUR	195	7.0551262	1.5866978	2.0000000	10.0000000
C58QUES	REP ORGN TO EXTRNL GRP/CUR	195	8.1128205	1.5523809	3.0000000	10.0000000
C59QUES	CLIMATE OF OPEN COMM/CUR	195	8.6358974	1.1822326	5.0000000	10.0000000
C60QUES	CONDUCT MEETINGS EFF/CUR	194	8.2628866	1.3264796	4.0000000	10.0000000

## (Perceived Required Skill Level)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
R34QUES	DEVLPL & COMM COND VISH/REQ	196	9.0510204	1.4455764	1.0000000	10.0000000
R39QUES	MANAGING CONFLICT/REQ	196	9.2704082	1.0540967	5.0000000	10.0000000
R44QUES	DEVLPL SUBORDINATES/REQ	196	9.2040816	1.2233555	2.0000000	10.0000000
R53QUES	WRITING EFFECTIVELY/REQ	196	9.2908163	0.9725026	5.0000000	10.0000000
R54QUES	POS & NEG FEEDBACK/REQ	196	9.2704082	0.9572085	5.0000000	10.0000000
R55QUES	DELVR EFF ORAL PRES/REQ	196	9.1785714	1.0346559	4.0000000	10.0000000
R56QUES	LISTENING EFFECTIVELY/REQ	196	9.4234694	0.8407934	6.0000000	10.0000000
R57QUES	BLD WORK & SUPRT RELTN/REQ	196	8.9846939	1.2003292	3.0000000	10.0000000
R58QUES	REP ORGN TO EXTRNL GRP/REQ	196	8.8520408	1.4370718	0	10.0000000
R59QUES	CLIMATE OF OPEN COMM/REQ	196	9.3010204	0.9479798	6.0000000	10.0000000
R60QUES	CONDUCT MEETINGS EFF/REQ	196	9.1020408	1.1590429	2.0000000	10.0000000

## (Deltas)

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Q34DELTA	DELTA-DEVLPL & COMM COND VISH	195	0.9641026	1.0343075	-8.0000000	7.0000000
Q39DELTA	DELTA-MANAGING CONFLICT	195	1.2000000	1.5749325	-3.0000000	7.0000000
Q44DELTA	DELTA-DEVLPL SUBORDINATES	195	0.6717949	1.3754004	-2.0000000	5.0000000
Q53DELTA	DELTA-WRITING EFFECTIVELY	195	0.6974359	1.2664357	-3.0000000	4.0000000
Q54DELTA	DELTA-POS & NEG FEEDBACK	195	0.9589744	1.2956545	-3.0000000	6.0000000
Q55DELTA	DELTA-DELVR EFF ORAL PRES	195	1.0000000	1.6245539	-3.0000000	7.0000000
Q56DELTA	DELTA-LISTENING EFFECTIVELY	195	1.1384615	1.4944253	-2.0000000	6.0000000
Q57DELTA	DELTA-BLD WORK & SUPRT RELTN	195	1.1743590	1.6960716	-3.0000000	7.0000000
Q58DELTA	DELTA-REP ORGN TO EXTRNL GRP	195	0.7333333	1.6152197	-5.0000000	6.0000000
Q59DELTA	DELTA-CLIMATE OF OPEN COMM	195	0.6615385	1.1252984	-2.0000000	5.0000000
Q60DELTA	DELTA-CONDUCT MEETINGS EFF	194	0.8350515	1.5650351	-7.0000000	6.0000000



Analysis Of Variance Procedure By Variable  
DoD Postgraduate Education

Analysis of Variance Procedure

Class Level Information

Class	Levels	Values
POSTYRS	2	0 1

Number of observations in data set = 476

Group	Obs	Dependent Variables
1	474	Q34DELTA Q39DELTA Q44DELTA Q53DELTA Q54DELTA Q55DELTA Q56DELTA Q58DELTA Q59DELTA
2	473	Q57DELTA
3	473	Q60DELTA

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

Note: Analysis of variance tests indicated that there was no statistically significant differences among the variable DoD postgraduate education at 0.05 level.

APPENDIX F

MANAGING A MILITARY MEDICAL TREATMENT FACILITY

A SURVEY OF EDUCATIONAL NEEDS

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY: A SURVEY OF EDUCATIONAL NEEDS

This survey is designed to assess your perception of the knowledge and ability required to effectively manage health care facilities, now and in the future. We will use the results of the survey to design executive management education programs.

The survey is based on the views and beliefs of over 100 Navy Medical Department executive managers, elicited through interviews and a pretesting process. As a result, survey questions represent management knowledge and abilities that were most frequently expressed as necessary for managing medical treatment facilities.

Your responses to this survey will become part of the aggregate of responses from others currently serving in executive management positions throughout the Navy Medical Department. The combined results will allow us to quantify the importance of each management skill area.

All information gathered by this survey will be collated, in the aggregate, for statistical use only. The anonymity of each survey participant is assured since no need exists, and no effort will be made, to identify the participants.

Please do the following:

1. Follow the instructions provided in the survey.
2. Complete this survey within **five (5) working days**.
3. Return your completed survey in the pre-addressed envelope provided for that purpose.

If you have any questions, contact Adj. Research Professor Ken Orloff at (408) 646-3339 or (DSN) 878-3339.

**Thank you for your participation.**

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART I

This survey has two purposes. It is designed to measure:

- 1) Your current level of managerial skills.
- 2) Your perception of the required level of skills for an executive in your role.

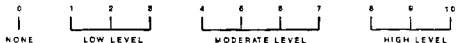
Using the scale, rate each of the following managerial activities in terms of your current level of knowledge or ability. A '0' indicates that you have no knowledge or ability in this area. A rating of '1' to '3' indicates a low level of knowledge or ability, a rating of '4' to '7' indicates a moderate level, and a rating of '8' to '10' indicates a high level. Use the numbers within a category to indicate your position more precisely. (Put your ratings in the column labeled 'Current Skill Level'.)

Then, using the same scale, rate the same managerial activities in terms of the required level of knowledge or ability necessary to function effectively as an executive in your role. (Put your rating in the column labeled "Required Skill Level.")



<u>CURRENT SKILL LEVEL</u>	<u>REQUIRED SKILL LEVEL</u>	
_____	_____	1. Interpreting financial statements, e.g., OPTAR, MEPR, NC2189, etc.
_____	_____	2. Recognizing funding sources and limitations of their uses.
_____	_____	3. Evaluating operating (O&M,N) and capital (OP,N) budgets and monitoring their execution.
_____	_____	4. Knowing the resource management advantages and drawbacks of alternative health care delivery systems.
_____	_____	5. Maximizing benefits from third party payer (e.g., insurance companies) reimbursements.
_____	_____	6. Working with the procurement system (negotiating, contracting, evaluating bids, acquiring goods and services).
_____	_____	7. Understanding cost-benefit analysis techniques (make or buy decisions, cost-effective trade-offs).
<u>PROGRAM PLANNING AND EVALUATION</u>		
_____	_____	8. Managing a planning process: using models and methods of both strategic and business planning.
_____	_____	9. Understanding methods for evaluating the effectiveness and efficiency of various programs.
_____	_____	10. Evaluating and applying market analysis strategies, including methods to analyze customer needs.
_____	_____	11. Employing quality improvement principles and methods.

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART I



CURRENT SKILL LEVEL    REQUIRED SKILL LEVEL

\_\_\_\_\_

12. Understanding the interrelationships of departments and functions of military treatment facilities, i.e., the systems perspective.

### DECISION MAKING/PROBLEM SOLVING

\_\_\_\_\_

13. Assessing the quality and usefulness of available information when faced with complex problems.

\_\_\_\_\_

14. Deciding the extent to which others should be included in decision making.

\_\_\_\_\_

15. Using decision making techniques/problem solving approaches and methods.

\_\_\_\_\_

16. Using management information systems technologies to solve complex problems.

\_\_\_\_\_

17. Using statistical tools in planning and day-to-day decision making.

\_\_\_\_\_

18. Understanding the strengths and weaknesses of the statistical techniques that controllers or quality assurance analysts most often use.

\_\_\_\_\_

19. Understanding how information systems are designed to meet information needs.

\_\_\_\_\_

20. Analyzing risks/alternatives.

### LEGAL ISSUES

\_\_\_\_\_

21. Knowing what constitutes a violation of the Uniform Code of Military Justice (UCMJ).

\_\_\_\_\_

22. Knowing what non-judicial punishments are available under the UCMJ.

\_\_\_\_\_

23. Initiating appropriate actions for UCMJ violations.

\_\_\_\_\_

24. Knowing administrative separation authority and procedures.

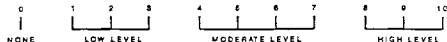
\_\_\_\_\_

25. Having a working knowledge of liability, both hospital and professional.

\_\_\_\_\_

26. Having a working knowledge of environmental impact issues.

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART I



CURRENT SKILL LEVEL    REQUIRED SKILL LEVEL

\_\_\_\_\_

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OPERATIONS MANAGEMENT ISSUES

27. Understanding the impact of OSHA requirements on hospital operations.

28. Evaluating the merit of proposals to acquire new technology.

29. Understanding the opportunities and limitations of the DoD/DoN materials management system.

30. Overseeing equipment management programs.

31. Ensuring proper execution of security requirements for the physical plant.

32. Overseeing facilities management.

ORGANIZATIONAL BEHAVIOR

33. Understanding the support requirements of the operating forces.

34. Developing and communicating a vision for the command.

35. Empowering individuals and work groups.

36. Developing a non-parochial/"generalist" perspective.

37. Building trust.

38. Managing change.

39. Managing conflict.

40. Building teamwork.

41. Developing a positive organizational climate/culture.

42. Motivating people.

43. Employing coordinating mechanisms (e.g., teams, task forces, ad hoc work groups).

44. Developing subordinates: coaching, teaching, mentoring.

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART I



### CURRENT SKILL LEVEL REQUIRED SKILL LEVEL

\_\_\_\_\_

45. Understanding the role/scope of the job of CO/XO.

\_\_\_\_\_

46. Promoting innovation and risk taking behavior.

### MANPOWER AND HUMAN RESOURCE MANAGEMENT

\_\_\_\_\_

47. Managing civilian personnel according to regulations and procedures.

\_\_\_\_\_

48. Managing military personnel according to regulations and procedures.

\_\_\_\_\_

49. Evaluating manpower and staffing needs.

\_\_\_\_\_

50. Managing labor relations (union negotiations, grievances, etc.)

\_\_\_\_\_

51. Managing multi-cultural diversity in the workplace.

\_\_\_\_\_

52. Building a climate that promotes ethical practices in clinical and managerial operations.

### COMMUNICATION

\_\_\_\_\_

53. Writing effectively.

\_\_\_\_\_

54. Giving positive and negative feedback.

\_\_\_\_\_

55. Delivering effective oral presentations.

\_\_\_\_\_

56. Listening effectively.

\_\_\_\_\_

57. Building and maintaining working and support relationships outside your institution.

\_\_\_\_\_

58. Representing the organization to external groups, e.g., public relations functions.

\_\_\_\_\_

59. Fostering a climate of open communication.

\_\_\_\_\_

60. Conducting meetings effectively.

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART I

If a management education program were to be developed for an executive in your role, what level of need would you attach to providing education in each of the following managerial activity groups. Using the scale below, a rating of '1' to '3' indicates a very low level, a rating of '4' to '7' indicates a moderate level, and a rating of '8' to '10' indicates a very high level. Use the numbers within a category to indicate more precisely the level of need.

1      2      3  
|-----|-----|  
VERY LOW PRIORITY

4      5      6      7  
|-----|-----|-----|  
MODERATE PRIORITY

8      9      10  
|-----|-----|  
HIGH PRIORITY

### PRIORITY

### MANAGERIAL ACTIVITY GROUPS

_____	Financial/Resource Management
_____	Program Planning and Evaluation
_____	Decision Making/Problem Solving
_____	Legal Issues
_____	Operations Management Issues
_____	Organizational Behavior
_____	Manpower and Human Resource Management
_____	Communication

Please provide below any additional comments you may have.



## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART II

In addition to the "managerial skill level" questionnaire you have just completed, please provide the demographic data and management education information requested below.

This information is part of the data collection effort and will be collated, in the aggregate, for statistical use only. The anonymity of each survey participant is assured since no need exists and no effort will be made to identify individuals participating in this survey.

**Instructions:** Please check only those blocks that apply in your individual case and legibly complete any other information in the underlined spaces provided for that purpose.

(1) **Demographic Data** - blocks involving subspecialty codes should be completed only where codes are formally assigned to you as an individual.

(2) **Management Education/Training** - check only those courses/programs you have successfully completed.

### DEMOGRAPHIC DATA

1. Rank: \_\_\_\_\_
2. Gender: ☐ Male ☐ Female
3. Designator: ☐ 21xx ☐ 23xx ☐ Other \_\_\_\_\_  
☐ 22xx ☐ 29xx
4. Subspecialties: \_\_\_\_\_  
(List by code if known)
5. Length of active commissioned service: Years \_\_\_\_\_ Months \_\_\_\_\_
6. Degrees completed: ☐ Bachelors - Major \_\_\_\_\_  
☐ Masters - Major \_\_\_\_\_  
☐ Doctorate - Major \_\_\_\_\_
7. Current position/title: \_\_\_\_\_
8. Facility Size: Beds (Set-up): \_\_\_\_\_  
Outpatient Visits (annual): \_\_\_\_\_  
Teaching Hospital: ☐ Yes ☐ No  
Family Practice Residency Only ☐ Yes ☐ No
9. Time served in current position:  
☐ Less than 6 months ☐ 6-12 months ☐ Greater than 36 months  
☐ 12-24 months ☐ 24-36 months
10. Total months service (past and present) in Commanding Officer billets: \_\_\_\_\_  
Total months service (past and present) in Executive Officer billets: \_\_\_\_\_
11. Years in current geographical location: \_\_\_\_\_
12. Number of prior managerial positions: \_\_\_\_\_  
(managerial = >50% of time involved in managerial (non-clinical) tasks)
13. Years service in managerial positions: \_\_\_\_\_

MANAGEMENT EDUCATION/TRAINING BACKGROUND

DOD Postgraduate Education Programs

- ☐ Armed Forces Staff College
  - ☐ Industrial College of the Armed Forces
  - ☐ Naval Postgraduate School
    - ☐ Financial Management
    - ☐ Manpower Planning, Training, Analysis
    - ☐ Information Systems Management
    - ☐ Operations Research
    - ☐ Logistics
  - ☐ Army-Baylor University
  - ☐ Naval War College
    - ☐ Command and Staff
    - ☐ Naval Warfare
  - ☐ Marine Corps Command and Staff College
  - ☐ Other Intermediate/Senior Service Schools: \_\_\_\_\_
- \_\_\_\_\_

Other Traditional Undergraduate/Graduate Management Programs

- ☐ MHA
- ☐ MPH
- ☐ MBA
- ☐ BS (HCA)
- ☐ BBA
- ☐ Other \_\_\_\_\_

Non-Traditional Postgraduate/Executive Management Programs

- ☐ Univ Wisconsin - Madison (MS Admin Medicine)
- ☐ Physicians in Management (PIM) Series, ACPE
- ☐ Management Education for Physicians (MEP), ACMGA
- ☐ Univ North Carolina - Kron Scholar Program
- ☐ Cornell Univ - Health Executives Development Program
- ☐ Johnson & Johnson - Wharton Fellows Program for Nurses
- ☐ Estes Park Institute (annual seminar)
- ☐ Other \_\_\_\_\_

## MANAGING A MILITARY MEDICAL TREATMENT FACILITY - PART II

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### MANAGEMENT EDUCATION/TRAINING BACKGROUND (cont)

#### Service Short Courses

- ☐ Prospective Commanding Officer/Executive Officer
- ☐ Interagency Institute for Federal Health Care Executives
- ☐ Leader Development (LMET)
  - ☐ Command
  - ☐ Senior
  - ☐ Intermediate
- ☐ Strategic Medical Readiness and Contingency
- ☐ Management Development
- ☐ Financial & Material Management
- ☐ Patient Services Administration
- ☐ Plans, Operations and Medical Intelligence
- ☐ Manpower Management
- ☐ Professional Military Comptroller
- ☐ Senior Leaders Seminar (TOL)
- ☐ Other \_\_\_\_\_

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### MANAGEMENT CERTIFICATION/ FELLOWSHIP

- ☐ ABMM (Board Certified)
- ☐ ACHE (Fellow)
- ☐ ACMGA (Fellow)
- ☐ ACPE (Fellow)
- ☐ AAMA (Fellow)
- ☐ Other \_\_\_\_\_

Thank you for your participation in this study. Results will form an integral part of research efforts directed at identifying the knowledge and skills needed to effectively manage health care facilities, now and in the future.

Please return your completed survey (both Parts I & II) in the envelope provided for that purpose to the following address:

SUPERINTENDENT Code AS/Or  
Naval Postgraduate School  
Monterey, CA 93943-5000

## APPENDIX G

### COMMUNICATION RELATED QUESTIONS

- Question 34      Developing and communicating a vision for the command.
- Question 39      Managing conflict.
- Question 44      Developing subordinates: coaching, teaching, mentoring.
- Question 53      Writing effectively.
- Question 54      Giving positive and negative feedback.
- Question 55      Delivering effective oral presentations.
- Question 56      Listening effectively.
- Question 57      Building and maintaining working and support relationships outside your institution.
- Question 58      Representing the organization to external groups, e.g., public relations functions.
- Question 59      Fostering a climate of open communication.
- Question 60      Conducting meetings effectively.

## APPENDIX H

### SIX MOST FREQUENTLY MENTIONED SKILL TRAINING, REQUIREMENT FOR COMMUNICATIONS SKILLS

Developing and communicating a vision for the command.	35%
Coaching, teaching, developing, mentoring.	28%
External communication (Public Relations).	45%
Writing skills	28%
Listening skills	26%
Meeting management	18%

## APPENDIX I

### CATEGORIZATION OF EXECUTIVE POSITION RESPONDENT GROUPS

<u>COHORT</u>	<u>RESPONSES</u>
Commanding Officer	Surgeon General Commanding Officer Office-in-charge
Executive Officer	Executive Officer
Director	Director for Administration Director for Auxiliary Services Director for Branch Clinics Director for Base Operations Director for Coordinated Care Policy Director for Field Operations Director for Health Services Director for Logistics Director for Medical Services Director for Medical Programs Director for Nursing Services Director for Occupational Health Director for Resources Director for Resources, Plans, & Policy Director for Service Medicine Director for Strategic Planning Director for Surgical Services Director Area Dental Labs Assistant Director Medical Services Assistant Director Nursing Services Assistant Director Occupational Health
Department Head	Department Head Comptroller
Operational Forces	Division Surgeon Director Undersea Medicine Fleet Liaison Officer Fleet Surgeon Force Surgeon Wing Medical Officer

COHORTRESPONSES**Other**

Assistant JPR Defense  
Assistant Chief Technical Operations  
Anesthesiologist  
Assistant Naval Inspector General  
Assignment Officer  
Assistant Plans and Analysis  
BUMED Division Officer  
Clinic Director  
Chief Naval Dental Corps  
Director Aerospace Medical  
Division/BUMED  
Deputy Assistant Secretary of Defense  
Deputy Chief Medical Corps  
Deputy Director/Non-Hospital  
Director Dental Clinic  
Deputy Director Nurse Corps  
Director Health Care Planning/BUMED  
Dental Officer  
Director Officer Indoctrination School  
Director Planning/BUMED  
Director Professional Development/BUMED  
Director Radiobiology Research Institute  
Director Tropical Public Health  
Staff Audiologist  
Environmental Health Officer  
Epidemiologist  
Force Master Chief  
Medical Corps Detailer  
Medical Flag officer  
MSC Career Plans Officer/BUMED  
Medical Services Officer  
Nurse Corps Plans Officer  
Navy Liaison OCHAMPUS  
Professor Obstetrics and Gynecology  
Oral Surgeon  
Physician's Assistant  
Program Manager  
Specialty Advisor  
Special Assistant Evaluations  
Special Assistant Headquarters Staff  
Senior Nurse IG Team  
Staff Physician  
Student  
Surgeon  
Total Quality Leadership Coordinator

# APPENDIX J

## DICTIONARY FOR MEANS TABLE VARIABLES

<u>VARIABLE</u>	<u>DEFINITION</u>
C34QUES	Question 34 - Current Skill
R34QUES	Question 34 - Required Skill
Q34DELTA	Question 34 - Delta (Required-Current)
C39QUES	Question 39 - Current Skill
R39QUES	Question 39 - Required Skill
Q39DELTA	Question 39 - Delta (Required-Current)
.	.
.	.
C60QUES	Question 60 - Current Skill
R60QUES	Question 60 - Required Skill
Q60DELTA	Question 60 - Delta (Required-Current)



## APPENDIX K

### POSTGRADUATE MANAGEMENT EDUCATION/TRAINING BACKGROUNDS

<u>PROGRAMS</u>	<u>CATEGORIES</u>
DoD Postgraduate Education	<p>Armed Forces Staff College  Industrial College of the Armed Forces  Naval Postgraduate School</p> <ul style="list-style-type: none"> <li>• Financial Management</li> <li>• Manpower Planning, Training, Analysis</li> <li>• Information Systems Management</li> <li>• Operations Research</li> <li>• Logistics</li> </ul> <p>Army-Baylor University  Naval War College</p> <ul style="list-style-type: none"> <li>• Command and Staff</li> <li>• Naval Warfare</li> </ul> <p>Marine Corps Command and Staff College</p>
Traditional Undergraduate/Graduate Management	<p>MHA  MPH  MBA  BS (HCA)  BBA</p>
Traditional Postgraduate/Executive Management	<p>Physicians in Management (PIM), AACPE Management Education for Physicians (MEP), ACMCA  University of Wisconsin-Madison</p> <ul style="list-style-type: none"> <li>• MS Administrative Medicine</li> </ul> <p>University of North Carolina</p> <ul style="list-style-type: none"> <li>• Kron Scholar Program</li> </ul> <p>Cornell University</p> <ul style="list-style-type: none"> <li>• Health Executives Development Program</li> </ul> <p>Johnson &amp; Johnson</p> <ul style="list-style-type: none"> <li>• Wharton Fellows Program for Nurses</li> </ul> <p>Estes Park Institute (annual seminar)</p>

## APPENDIX L

### SHORT COURSE MANAGEMENT EDUCATION/TRAINING BACKGROUNDS

#### DON SHORT COURSE SCHOOLS

- Prospective Commanding Officer/Executive Officer
- Interagency Institute for Federal Health Care Executives
- Leader Development (LMET)
  - Command (LMETC)
  - Senior (LMETS)
  - Intermediate (LMETI)
- Strategic Medical Readiness and Contingency
- Management Development (MANDEV)
- Financial & Material Management
- Patient Services Administration
- Plans, Operations and Medical Intelligence
- Manpower Management
- Professional Military Comptroller
- Senior Leaders Seminar (TQL)

## APPENDIX M

## CROSS TABULATION BY PARTICIPANTS IN DoN SHORT COURSES

DoN SHORT COURSES SAMPLE N=476	P C O O E	L M E T C	D M E T S	L M E T S	H A N D E V	S L S	S M R C	P O M I	I I F H C E	P S A	P M H	P M C	M M
PCOXO (N=117)		70.9	55.8	22.2	13.9	51.1	75.2	71	34.1	2.36	4.27	17	20
LMETC (N=135)	61.7		51.9	23.6	20.7	53.3	77.0	2.22	35.6	1.48	2.22	6.0	74
LMETS (N=216)	29.2	32.4		34.7	18.4	51.8	73.6	3.24	21.8	4.17	4.17	1.8	2.8
LMETI (N=138)	18.7	22.3	54.0		21.8	49.6	54.0	1.90	10.8	7.19	4.32	2.2	2.2
HANDEV (N=71)	11.0	19.4	39.2	42.3		45.1	74.7	2.82	28.8	0.00	4.23	0.0	0.0
SLS (N=195)	30.8	36.9	56.9	35.8	16.4		89.7	3.59	22.6	5.11	5.64	2.1	3.8
SMRC (N=269)	32.7	38.7	59.1	21.9	19.7	50.8		3.72	25.7	2.80	4.46	1.1	2.8
PONI (N=16)	12.5	18.8	43.8	31.3	12.5	43.8	62.5		18.8	12.5	25.0	0.0	25
IFHCE (N=84)	47.6	57.1	56.0	17.9	22.6	52.4	82.1	3.57		1.19	2.38	0.0	0.0
PSA (N=24)	12.5	3.33	37.5	41.7	0.00	41.7	29.2	8.33	4.17		12.5	8.3	17
PMH (N=22)	21.7	15.6	40.9	27.3	13.6	59.0	54.6	18.2	8.09	13.6		18	14
PMC (N=7)	28.6	0.00	37.1	42.9	0.00	57.1	47.9	0.00	0.00	28.6	57.1		14
MM (N=12)	0.00	8.33	50.0	25.0	0.00	58.3	58.3	33.3	0.00	33.3	25.0	8.3	

Note: Cross tabulations of schools on left by schools across top is interpreted as the number of individuals who participated in the one school who also participated in the other (eg. of those individuals who took the LMETC course, 77.0% of them also took SMRC).

APPENDIX N

SUMMARY OF AGGREGATE MEAN AND DELTA TABLES BY  
DIFFERENT DEMOGRAPHIC VARIABLES

**AGGREGATE MEANS AND DELTAS BY DESIGNATOR**

Communication Related Survey Questions	Medical N=153	Dental N=97	Nurse N=50	MSC/HCA N=93	MSC/AH N=30
Q34 (Current)	7.46	7.60	7.86	8.30	7.75
(Required)	8.77	8.66	9.32	9.06	8.89
(Delta)	1.31	1.06	1.46	0.76	1.14
Q39 (Current)	7.79	7.69	8.24	8.24	8.00
(Required)	9.19	8.88	9.74	9.17	9.21
(Delta)	1.40	1.19	1.50	0.93	1.21
Q44 (Current)	8.10	8.18	8.94	8.62	8.44
(Required)	9.06	9.00	9.54	9.25	9.03
(Delta)	0.96	0.82	0.60	0.63	0.59
Q53 (Current)	8.44	8.29	8.50	8.75	8.38
(Required)	9.19	9.13	9.60	9.38	8.93
(Delta)	0.75	0.84	1.10	0.63	0.55
Q54 (Current)	7.92	8.13	8.74	8.39	8.35
(Required)	9.13	9.11	9.62	9.16	9.07
(Delta)	1.21	0.98	0.88	0.77	0.72
Q55 (Current)	7.99	7.58	8.02	8.44	8.27
(Required)	9.06	8.91	9.46	9.23	8.93
(Delta)	1.07	1.33	1.44	0.79	0.66
Q56 (Current)	8.15	8.20	8.76	8.34	8.31
(Required)	9.27	9.31	9.84	9.39	9.21
(Delta)	1.12	1.11	1.08	1.05	0.90
Q57 (Current)	7.49	7.31	7.88	7.91	8.00
(Required)	8.84	8.57	9.54	8.79	8.83
(Delta)	1.35	1.26	1.66	0.88	0.83
Q58 (Current)	7.56	7.05	8.20	8.22	7.90
(Required)	8.61	8.18	9.28	8.88	8.52
(Delta)	1.05	1.13	1.08	0.66	0.62
Q59 (Current)	8.43	8.43	8.92	8.77	8.66
(Required)	9.23	9.13	9.76	9.27	9.14
(Delta)	0.79	0.70	0.84	0.50	0.48
Q60 (Current)	7.99	7.57	8.56	8.32	8.38
(Required)	9.06	8.31	9.50	9.03	8.86
(Delta)	1.07	1.34	0.94	0.71	0.48

**AGGREGATE MEANS AND DELTAS BY RANK**

Communication Survey Related Questions	ADMIRAL N=10	CAPTAIN N N=311	CDR N=96	LCDR N=43	OTHER N=11
Q34 (Current) (Required) (Delta)	9.20 9.70 0.50	7.87 8.81 0.94	7.32 8.93 1.61	7.40 8.77 1.37	7.00 8.18 1.18
Q39 (Current) (Required) (Delta)	8.80 9.60 0.80	8.00 9.16 1.16	7.75 9.25 1.50	8.26 9.35 1.09	7.00 8.27 1.27
Q44 (Current) (Required) (Delta)	9.40 9.60 0.20	8.43 9.09 0.66	8.12 9.21 1.09	8.21 9.12 0.91	7.73 8.36 0.63
Q53 (Current) (Required) (Delta)	8.80 9.70 0.90	8.53 9.21 0.68	8.36 9.21 0.85	8.41 9.40 1.01	7.73 9.00 1.27
Q54 (Current) (Required) (Delta)	8.70 9.70 1.00	8.24 9.19 0.95	8.15 9.21 1.06	8.16 9.09 0.93	7.45 8.55 1.09
Q55 (Current) (Required) (Delta)	8.80 9.70 0.90	8.07 9.05 0.98	7.84 9.11 1.27	8.30 9.23 0.93	7.45 8.45 1.00
Q56 (Current) (Required) (Delta)	9.10 9.90 0.80	8.33 9.34 1.01	8.06 9.44 1.38	8.35 9.30 0.95	7.82 8.73 0.91
Q57 (Current) (Required) (Delta)	8.90 9.80 0.90	7.75 8.84 1.09	7.40 8.77 1.37	7.13 8.57 1.44	6.73 8.27 1.54
Q58 (Current) (Required) (Delta)	9.30 9.80 0.50	7.68 8.56 0.88	7.79 8.75 0.96	7.34 8.48 1.14	7.36 7.82 0.46
Q59 (Current) (Required) (Delta)	9.30 9.80 0.50	8.60 9.29 0.69	8.61 9.29 0.68	8.52 9.19 0.67	8.18 8.55 0.37
Q60 (Current) (Required) (Delta)	8.90 9.70 0.80	8.08 9.08 1.00	8.15 9.00 0.85	7.91 8.98 1.07	7.36 8.27 0.91

**AGGREGATE MEANS AND DELTAS BY GENDER**

Communication Related Survey Questions	MALE N=395	FEMALE N=65
Q34 (Current) (Required) (Delta)	7.73 8.78 1.05	7.65 9.22 1.57
Q39 (Current) (Required) (Delta)	7.95 9.11 1.16	7.95 9.55 1.60
Q44 (Current) (Required) (Delta)	8.31 9.07 0.76	8.62 9.32 0.70
Q53 (Current) (Required) (Delta)	8.49 9.18 0.69	8.35 9.43 1.08
Q54 (Current) (Required) (Delta)	8.16 9.12 0.96	8.46 9.46 1.00
Q55 (Current) (Required) (Delta)	8.04 9.04 1.00	7.97 9.25 1.28
Q56 (Current) (Required) (Delta)	8.24 9.31 1.07	8.58 9.60 1.02
Q57 (Current) (Required) (Delta)	7.62 8.74 1.12	7.65 9.26 1.61
Q58 (Current) (Required) (Delta)	7.66 8.53 0.87	7.94 8.97 1.03
Q59 (Current) (Required) (Delta)	8.59 9.23 0.64	8.58 9.49 0.91
Q60 (Current) (Required) (Delta)	8.04 9.01 0.97	8.31 9.31 1.00

**AGGREGATE MEANS AND DELTAS BY EDUCATION**

Communication Related Survey Questions	Bachelors Degree N=283	Masters Degree N=164	Doctorate Degree N=23
Q34 (Current) (Required) (Delta)	7.53 8.71 1.18	8.05 9.09 1.04	7.61 8.57 0.96
Q39 (Current) (Required) (Delta)	7.67 9.06 1.29	8.27 9.44 1.17	8.17 9.04 0.87
Q44 (Current) (Required) (Delta)	8.13 9.01 0.88	8.68 9.35 0.67	8.74 8.74 0.00
Q53 (Current) (Required) (Delta)	8.40 9.14 0.74	8.64 9.36 0.74	8.26 9.17 0.91
Q54 (Current) (Required) (Delta)	8.01 9.10 1.09	8.55 9.32 0.77	8.30 9.00 0.70
Q55 (Current) (Required) (Delta)	7.87 8.97 1.10	8.33 9.28 0.95	8.30 8.91 0.61
Q56 (Current) (Required) (Delta)	8.45 9.26 1.21	8.55 9.53 0.98	8.09 9.09 1.00
Q57 (Current) (Required) (Delta)	7.45 8.71 1.26	7.90 8.97 1.07	7.74 8.70 0.96
Q58 (Current) (Required) (Delta)	7.39 8.41 1.02	8.14 8.91 0.77	8.26 8.57 0.31
Q59 (Current) (Required) (Delta)	8.45 9.20 0.85	8.85 9.42 0.57	8.65 9.04 0.39
Q60 (Current) (Required) (Delta)	7.88 9.01 1.13	8.42 9.15 0.73	8.09 8.70 0.61



**AGGREGATE MEANS AND DELTAS BY POSITION**

Communication Related Survey Questions	CO N=97	XO N=72	DH N=44	OPS N=16	DIR N=140	OTHER N=106
Q34 (Current)	8.28	7.86	7.18	7.63	7.57	7.59
(Required)	9.22	8.99	8.59	9.06	8.75	8.58
(Delta)	0.94	1.13	1.41	1.43	1.18	1.01
Q39 (Current)	7.96	8.07	7.57	8.13	8.09	7.89
(Required)	9.16	9.28	9.11	9.31	9.26	9.06
(Delta)	1.20	1.21	1.54	1.18	1.17	1.17
Q44 (Current)	8.49	8.24	8.23	8.75	8.35	8.32
(Required)	9.26	9.18	8.82	9.00	9.19	8.99
(Delta)	0.77	0.94	0.59	0.25	0.84	0.67
Q53 (Current)	8.60	8.40	8.34	8.31	8.43	8.51
(Required)	9.14	9.28	9.07	9.19	9.31	9.23
(Delta)	0.56	0.88	0.73	0.88	0.88	0.72
Q54 (Current)	8.30	8.24	7.80	8.44	8.29	8.13
(Required)	9.27	9.38	9.09	9.19	9.11	9.08
(Delta)	0.97	1.14	1.29	0.75	0.82	0.95
Q55 (Current)	8.01	7.97	8.00	7.94	8.19	7.97
(Required)	9.18	9.11	9.16	8.75	9.09	8.97
(Delta)	1.17	1.14	1.16	0.81	0.90	1.00
Q56 (Current)	8.27	8.18	8.20	8.25	8.34	8.33
(Required)	9.40	9.47	9.30	9.19	9.32	9.33
(Delta)	1.13	1.29	1.10	0.94	0.98	1.00
Q57 (Current)	7.97	7.38	7.59	8.00	7.54	7.55
(Required)	8.98	8.82	8.73	9.06	8.65	8.86
(Delta)	1.01	1.44	1.14	1.06	1.11	1.31
Q58 (Current)	8.13	7.32	7.39	7.31	7.69	7.76
(Required)	8.93	8.57	8.36	8.25	8.51	8.59
(Delta)	0.80	1.25	0.97	0.94	0.82	0.83
Q59 (Current)	8.89	8.65	8.41	8.31	8.49	8.55
(Required)	9.38	9.40	9.23	9.06	9.11	9.28
(Delta)	0.49	0.85	0.82	0.75	0.62	0.73
Q60 (Current)	8.11	8.14	8.02	7.56	8.10	8.11
(Required)	9.12	9.28	9.14	8.06	8.99	9.04
(Delta)	1.01	1.14	1.12	0.50	0.89	0.93

**AGGREGATE MEANS AND DELTAS BY YEARS OF MANAGERIAL SERVICE**

Communication Related Survey Questions	0 to 5 YEARS N=144	>5 to 10 YEARS N=172	>10 to 15 YEARS N=79	15+ YEARS N=79
Q34 (Current) (Required) (Delta)	7.04 8.70 1.66	7.79 8.79 1.00	8.20 9.03 0.83	8.38 9.00 0.62
Q39 (Current) (Required) (Delta)	7.55 9.12 1.57	7.88 8.98 1.10	8.32 9.51 1.19	8.57 9.44 0.87
Q44 (Current) (Required) (Delta)	7.84 9.01 1.17	8.35 8.97 0.62	8.82 9.41 0.59	8.85 9.35 0.50
Q53 (Current) (Required) (Delta)	8.17 9.08 0.91	8.44 9.20 0.76	8.84 9.42 0.58	8.68 9.35 0.67
Q54 (Current) (Required) (Delta)	7.86 9.10 1.24	8.13 9.01 0.88	8.56 9.42 0.86	8.66 9.43 0.77
Q55 (Current) (Required) (Delta)	7.81 8.94 1.13	7.83 8.95 1.12	8.35 9.35 1.00	8.67 9.34 0.67
Q56 (Current) (Required) (Delta)	7.86 9.21 1.35	8.33 9.27 0.94	8.61 9.58 0.97	8.63 9.57 0.94
Q57 (Current) (Required) (Delta)	7.06 8.58 1.52	7.71 8.81 1.10	7.87 8.94 1.07	8.22 9.09 0.87
Q58 (Current) (Required) (Delta)	6.99 8.35 1.36	7.75 8.49 0.74	8.08 8.91 0.83	8.51 8.99 0.48
Q59 (Current) (Required) (Delta)	8.17 9.05 0.88	8.64 9.24 0.60	8.82 9.53 0.71	9.04 9.49 0.45
Q60 (Current) (Required) (Delta)	7.60 8.88 1.28	8.11 9.09 0.98	8.40 9.20 0.80	8.61 9.15 0.54

**AGGREGATE MEANS AND DELTAS BY DoN SHORT COURSES**

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Communication Related Survey Questions	NO DoN SHORT N=206	DoN SHORT N=269
Q34 (Current) (Required) (Delta)	7.43 8.76 1.33	7.96 8.90 0.94
Q39 (Current) (Required) (Delta)	7.86 9.16 1.30	8.05 9.21 1.16
Q44 (Current) (Required) (Delta)	5.22 6.11 0.89	8.47 9.12 0.65
Q53 (Current) (Required) (Delta)	8.30 9.15 0.85	8.59 9.29 0.70
Q54 (Current) (Required) (Delta)	8.11 9.12 1.01	8.28 9.22 0.94
Q55 (Current) (Required) (Delta)	8.01 9.07 1.06	8.07 9.08 1.01
Q56 (Current) (Required) (Delta)	8.25 9.24 1.01	8.31 9.44 1.13
Q57 (Current) (Required) (Delta)	7.38 8.67 1.29	7.81 8.92 1.11
Q58 (Current) (Required) (Delta)	7.54 8.59 1.05	7.82 8.61 0.79
Q59 (Current) (Required) (Delta)	8.60 9.23 0.63	8.59 9.31 0.72
Q60 (Current) (Required) (Delta)	7.97 8.92 0.95	8.18 9.15 0.97

AGGREGATE MEANS AND DELTAS BY DoD POSTGRADUATE EDUCATION

Communication Related Survey Questions	NO DoD POSTGRAD N=279	DoD POSTGRAD N=195
Q34 (Current) (Required) (Delta)	7.48 8.69 1.21	8.09 9.05 0.96
Q39 (Current) (Required) (Delta)	7.90 9.13 1.23	8.07 9.27 1.20
Q44 (Current) (Required) (Delta)	8.24 9.05 0.81	8.53 9.20 0.67
Q53 (Current) (Required) (Delta)	8.38 9.18 0.80	8.59 9.29 0.70
Q54 (Current) (Required) (Delta)	8.14 9.11 0.97	8.31 9.27 0.96
Q55 (Current) (Required) (Delta)	7.96 9.01 1.05	8.17 9.18 1.01
Q56 (Current) (Required) (Delta)	8.29 9.31 1.02	8.28 9.42 1.14
Q57 (Current) (Required) (Delta)	7.50 8.69 1.19	7.81 8.98 1.17
Q58 (Current) (Required) (Delta)	7.41 8.43 1.02	8.11 8.85 0.74
Q59 (Current) (Required) (Delta)	8.56 9.25 0.69	8.64 9.30 0.66
Q60 (Current) (Required) (Delta)	7.96 9.02 1.06	8.26 9.10 0.84

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